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**IDENTIFICATION AND MANAGEMENT OF ADOLESCENT ALCOHOL USE:
SCREENING AND MOTIVATIONAL INTERVIEWING**

by

KELSIE L. BERGER

EVIDENCE-BASED PRACTICE PROJECT REPORT

Submitted to the College of Nursing and Health Professions

of Valparaiso University,

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ABSTRACT

Adolescent alcohol consumption is a serious health problem in the United States. Alcohol is the most widely used substance, and it continues to be the drug of choice for adolescents (CDC, 2018). Over 7 million adolescents and approximately 30 percent of high school students in the U.S. that admit to drinking more than a few sips of alcohol in the past 30 days (NIAAA, n.d.). Underage alcohol use can lead to many complications such as social, school, and legal problems, and when initiated early in life is associated with the development of alcohol use disorder (NIAAA, n.d.). The purpose of this evidence-based project is to create a policy to help clinicians identify and manage adolescent alcohol use with the goal of reducing underage alcohol consumption. The PICOT question examined was, “In adolescents 13-18 years old that seek health care at a school-based clinic (P) how does the implementation of an SBIRT policy that focuses on motivational interviewing (I) decrease underage alcohol use (O) at 4 and 8-weeks post-intervention”. A policy for screening and management of adolescent alcohol use at school-based clinics was implemented from October 2019 to February 2020 in an underserved community in northwestern Indiana. The policy included the process of provider training, confidentiality, screening, motivational interviewing (MI), and referral. Data were collected on screening results using the age-based screening packet, which contains demographic information, the NIAAA screener, CRAFFT tool, and additional alcohol questions. A score of 2 or higher on the CRAFFT tool indicates the need for MI. A pre-test post-test design was utilized where adolescents are measured pre-intervention, and then at four- and eight-weeks post-intervention. Descriptive and inferential statistics will be utilized to analyze the data. It is anticipated that underage alcohol use will be reduced. The results will indicate if the policy for identification and management utilizing MI should be integrated into practice to reduce adolescent alcohol use.

CHAPTER 1

INTRODUCTION

Background

Underage alcohol use is a serious health problem in the United States. Alcohol is the most widely used substance, and it continues to be the drug of choice for adolescents (NIAAA, n.d). Typically, this is the first substance adolescents' experiment with. As adolescents age, the proportion of those that drink rises from seven percent at 12 years of age to 70 percent at 18 years of age. Furthermore, 11 percent of all alcohol consumption in the United States is by adolescents aged 12 to 20 years (NIAAA, 2016; NIAAA, n.d.).

It is unclear why alcohol use is so common in adolescents, but it is speculated that easy accessibility and lack of legal consequences compared to other illicit substances aids in underage drinking (Tripodi, et al., 2010). Other possible reasons why so many young people drink are peer pressure, increased independence, and stress. Many adolescents have easy access to alcohol in the home, and some adolescents receive alcohol from family or friends (NIAAA, n.d). In fact, about 95 percent of adolescents 12 to 14 years of age reported that they received free alcohol the last time they drank (NIAAA, n.d.). Adolescent alcohol use is often underestimated by parents and other adults. However, adolescents may drink less alcohol overall than adults, but when they do drink, they drink more than adult, which creates issues with binge drinking (NIAAA, n.d.).

Underage alcohol use can lead to many complications including social problems, school problems, legal problems, physical problems, risky sexual activity, disruption of growth and sexual development, assault, and higher risk of suicide and homicide. Other complications include alcohol-related car accidents and other unintentional injuries, memory problems, abuse of other drugs, changes in brain development, and death from alcohol poisoning (CDC, 2018). More specifically, impaired judgment and participation in risky behaviors can present as unprotected sex or aggression and violence. Another example is cognitive or learning

disabilities as a result of changes in brain development affecting the structure and function of the brain (NIAAA, n.d.).

According to the NIAAA (n.d.), alcohol use initiated early in life is associated with the development of alcohol use disorder (AUD). AUD, previously known as alcoholism, is a chronic brain disease that is characterized by compulsive alcohol use, loss of control over alcohol intake, and negative emotional states when not using (NIAAA, n.d.). It is estimated that in 2015, approximately 623,000 adolescents aged 12-17 that were diagnosed with AUD (NIAAA, n.d.). Approximately, 90 percent of adolescent alcohol consumption is by binge drinking. Binge drinking for adolescents is drinking so much in two hours that blood alcohol concentration (BAC) levels reach the legal limit of intoxication at 0.08g/dL (NIAAA, n.d.). Overall, it takes adolescents fewer drinks than adults to reach the legal BAC level. For girls 9 to 17 years of age, it takes about three drinks. For males 9 to 13 years of age it takes about three drinks, for males 14 to 15 years of age it takes about 4 drinks, and for males 16 to 18 years of age, it takes about five drinks to reach the legal BAC level (NIAAA, n.d.). A standard drink in the U.S. is considered about 14 grams of pure alcohol, which equals to 12 ounces of beer, five ounces of wine, and 1.5 ounces of distilled spirits (NIAAA, n.d.).

The Surgeon General (2007) issued a Call to Action to help prevent underage alcohol use that sought out a substantial number of organizations and researchers to determine ways to prevent and reduce underage drinking, and thus, the complications that coincide with underage alcohol use. Not only has the concern to correctly identify and manage underage adolescents that consume alcohol been discussed, more specifically, the major area of concern is how to motivate change within these adolescents that use alcohol to prevent or reduce harm (The Surgeon General, 2007).

Data from the Literature

Alcohol and drug abuse in adolescents was the number one concern rated by adults on a nationally representative household survey in 2011 (Levy and Williams, 2016). Many young people drink alcohol; in fact, there are over 7 million adolescents or 30 percent of high school students in the United States that admit to drinking more than a few sips of alcohol in the past 30 days (CDC, 2018; NIAAA, n.d.). Furthermore, the 2017 youth risk behavior survey found that among high school students in the past 30 days 14 percent binge drank, six percent drove after drinking, and 17 percent rode with a driver that had consumed alcohol (CDC, 2018). In the Midwest, there are about 1.7 million adolescents that consumed alcohol in the past 30 days and 164,000 of those were in Indiana alone based on the annual averages of the 2016 and 2017 National Surveys on Drug Use and Health (NSDUH) by the Substance Abuse and Mental Health Services Administration (SAMHSA).

Unfortunately, there are more than 4,300 adolescent deaths each year as a result of excessive underage alcohol use. About 1,580 deaths are from car accidents, 1,269 from homicides, 245 from alcohol poisoning, and about 492 from suicides (CDC, 2018). Not only is the death toll astronomical, but the economic cost in 2010 of underage drinking was about \$24 billion in the United States (CDC, 2018). In 2013, there were approximately 119,000 emergency room visits by those aged 12 to 21 for injuries or other conditions caused by alcohol use. Also, out of all the adolescents estimated to have AUD, only eight percent receive proper treatment (CDC, 2018).

Clinical Agency Data

A local organization was chosen as the clinical site for this project due to concerns of increased underage alcohol use and lack of current policy regarding the identification and management of adolescent alcohol use. The organization has two school-based clinics within junior and senior high schools that not only serve the adolescents grades 7 through 12 within the school, but also serve the elementary schools, parents, and all school staff within their

respective school districts. Both school-based clinics are supervised by a family nurse practitioner (FNP) who also provides all levels of care.

The organization's mission statement is heavily focused on providing quality health care regardless of socioeconomic status, race, sex, culture, or ability to pay (NorthShore Health Centers, n.d.). Students that seek care in the clinic receive the highest quality health care to accomplish the goals of the mission statement. It was reported that some providers discussed alcohol use during well visits or if there were concerns regarding alcohol use, but this was infrequent, and no formal best evidence policy was followed. Pamphlets were also available in the waiting rooms regarding alcohol use at sites within the organization. One of the school-based clinics has a poster board discussing the consequences of alcohol use in an exam room. However, no policy regarding underage alcohol use identification and management was established in the organization. After meeting and discussing the project and the need, the project was approved by stakeholders of the organization. The FNP served as a facilitator and clinical guide.

Since there was no formal best practice policy in place within this organization, it was evident that there was a need for implementation of a best practice guideline. This is especially true since the FNP indicated that she encounters many students that admit to alcohol use. In fact, it is a common problem identified by most school staff. Many students will openly discuss their plans to consume alcohol in front of adults with no fear of repercussions (nurse practitioner, personal communication, June 4, 2019).

Purpose of the Evidence-Based Practice Project

The purpose of this EBP project is to reduce alcohol use within this adolescent population in north western Indiana; thus, reducing alcohol related consequences. The Surgeon General's Call to Action (2007) made it apparent that research on the best methods to prevent and reduce underage alcohol consumption consequences was a necessity. Statistics demonstrate that alcohol consumption by adolescents is high and a significant public health

concern. It is imperative that providers are educated on this topic and properly trained on how to identify and manage underage drinking. To address this issue, the implementation of a best practice guideline for the identification and management of alcohol use in adolescents in school-based clinics is integral. Creating an organization change by educating the clinic staff, training the staff on identification and management, including proper screening and motivational interviewing was essential to the success of the project.

PICOT Question

The PICOT question examined was, “In adolescents 13-18 years old that seek health care at a school-based clinic, how does the implementation of an screening, brief intervention, and referral to treatment (SBIRT) policy that focuses on motivational interviewing decrease underage alcohol use at 4 and 8-weeks post-intervention?”. The project entailed the implementation of a new policy to address underage drinking based on best practice guidelines acquired from the evidence. However, the effect of motivational interviewing on the reduction of alcohol consumption in this population was the main outcome measured.

Significance of the Problem

Underage drinking is a significant health concern that can result in deadly consequences. Evidence depicts that there is still a large percentage of adolescents that participate in alcohol consumption, and therefore at risk for a multitude of consequences including death (NIAAA, n.d). This EBP project was initiated to provide knowledge regarding the utilization of best practice guidelines about the identification and management of underage drinking. The implementation of best practice evidence identified by this EBP project could lead to a reduction in alcohol consumption and related consequences in adolescents; thus, improving patient outcomes and preventing multiple injuries and psychosocial concerns.

The Surgeon General's Call to Action to prevent and reduce underage drinking proposed six goals for the nation to fulfill the vision for the future of America's youth. Goal one is to foster changes in the U.S. that facilitate adolescent development that will enable prevention and

reduction of underage alcohol consumption. Goal two is to engage caregivers, parents, schools, communities, and all levels of government, and youth in a coordinated national effort. The third goal is to promote the understanding of underage alcohol consumption in the context of development and maturation. Goal four is to conduct additional research on underage drinking. The fifth goal is to improve public health surveillance on underage drinking and on risk factors. Lastly, the sixth goal is to ensure that policies are consistent with the national goal of prevention and reduction of underage drinking (U.S. Department of Health and Human Services, 2007). Furthermore, this EBP project will attempt to address all six goals in the school-based clinic to aid in the Surgeon General's Call to Action.

CHAPTER 2

EVIDENCE-BASED PRACTICE THEORY AND REVIEW OF LITERATURE

Evidence-based practice (EBP) is the analysis and implementation of research or other evidence within the literature to determine best practice. EBP is utilized by clinicians to improve patient-centered care and outcomes. This project aims at using EBP to determine the best methods for identification and management of adolescents using alcohol. To help achieve this goal, this project included a substantial review of literature to determine the best practice intervention at reducing alcohol use in adolescents aged 13-18 years of age at a school-based clinic. An EBP model was used to aid in the establishment and guidance of this project. This chapter will include a description of the EBP model, as well as include a review of the literature on best practice.

Evidence-Based Practice Theory

The Stevens star model of knowledge transformation was used to guide this product. This model was developed by Dr. Kathleen R. Stevens at the Academic Center for Evidence-Based Practice (ACE) at the University of Texas Health Science Center of San Antonio. The star model aids in understanding the characteristics, nature, and cycles of knowledge that are utilized in evidence-based practice (Stevens, 2012). Furthermore, the star model helps bridge the gap between best evidence, patient preferences, and clinical expertise.

The star model is a cyclical model that has five stages of knowledge transformation. It is depicted as a five-point star with a stage at each point. This model can be used as a guide to move newly discovered information into practice and to simplify research for application to clinical decision making (Melnyk and Fineout-Overholt, 2019). The five stages of knowledge transformation in the star mode include: (1) discovery research, (2) evidence summary, (3) translation to guidelines, (4) practice integration, and (5) process and outcome evaluation (Stevens, 2012).

Discovery research. This is the initial stage of the star model where new knowledge is generated. In this stage a topic is identified and researched using research methods and scientific inquiry. Throughout this stage there is a collection of evidence that is relevant to the specific topic. Some topics will have a large collection of evidence based on the amount of research, while others will have little or even no collection of evidence (Stevens, 2012).

Evidence summary. This is the second stage or point of the star model. This stage is where the collection of evidence that was gathered in the discovery research is synthesized. The goal of the synthesis of evidence is to make a summary statement on the best evidence. Knowledge generation also occurs simultaneously during this second stage, which is where new knowledge is found and combined from various studies to create the evidence summary (Stevens, 2012). Knowledge generation is the process in which information is acquired and transformed into information that can be utilized by people or organizations.

Translation to guidelines. The third point on the star represents the third stage where the evidence summary is combined in a useful and relevant way by taking the knowledge that was generated and presenting it in a manner that makes it easy to understand. Thus, creating a cost effective and time reducing guideline that clinicians can easily utilize in practice settings. This stage is one of two stages needed to bring evidence summaries into practice (Stevens, 2012). Clinical practice guidelines are the summation of best practice evidence into tools that allow for easy integration of recommendation into a clinician's practice setting.

Practice integration. The fourth stage in the star model brings evidence summaries into practice. During this stage, guidelines are implemented in practice. This is where practice and clinical decision making are aligned to reflect best practice (Melnik and Fineout-Overholt, 2019). This allows clinicians to provide optimal care that is based on best-practice evidence by implementation of guidelines that are specific to their clinical topic.

Process and outcome evaluation. This is the fifth and final stage of knowledge transformation. This stage evaluates the impact that the EBP has on patient outcomes. It also

examines the satisfaction of both the patient and provider. Efficiency of the guideline is also evaluated to ensure that the new practice does not hinder how clinicians provide care. Efficacy is also evaluated to determine if the guideline had the desired effect. Economic impact is also important to evaluate to ensure that the implementation of the guideline is sustainable. This final stage is important to complete the knowledge transformation to evidence-based practice (Stevens, 2012). Knowledge transformation is the process of an identified clinical problem evolving into a guideline that addresses the problem. The completion of knowledge transformation is helpful by bringing about a solution to a clinical problem that affects both patients and providers, which creates an environment that enables optimal health care.

Application of Evidence-Based Practice Model to Project

The Stevens star model of knowledge transformation was crucial to the integration of best practice into a preexisting healthcare organization. All five stages were utilized to guide the knowledge transformation of this EBP project. The initial stage of discovery research was implemented to obtain best evidence regarding the management of adolescents that use alcohol. The knowledge found during the discovery will be utilized to provide a motivational interviewing intervention that is aimed at reducing alcohol use in adolescents. Star model application to this EBP project resulted in best practice evidence for managing the identification and management of adolescents using alcohol.

Examination of other sources that employed the star model as a guide to knowledge transformation was conducted. The article by Farra, Miller, and Hodgson (2015) utilized the Stevens star model to guide their research of evidence based virtual reality simulation (VRS) in disaster training into education practice. All five stages of the star model were conducted to implement the use of best practice related to education on disaster training. The evidence indicates that VRS has great success in providing education on disaster training. This article outlined how to use and apply the star model to create a successful transformation of knowledge to EBP (Farra, et al., 2015).

For this EBP project, the star model was utilized to obtain knowledge about the identification and management of adolescents using alcohol. This was accomplished by examining multiple databases about the best practice evidence related to this topic. Multiple study designs were found that related to this topic, including systematic reviews and meta-analyses. It was apparent that there were best practice recommendations regarding the identification and management of youth at risk for alcohol use. This search in the literature was guided by the star model discovery research stage. This knowledge was then transformed when the evidence gathered from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and multiple evidence sources were assessed for quality. All evidence obtained were analyzed and synthesized to create the evidence summary. The evidence summary was then taken, transformed, and combined into a relevant evidence-based recommendation that is easy to use. The fourth stage of practice integration is where the best evidence is transformed and implemented into clinical practice. Best practice guidelines regarding the identification and management of adolescent alcohol use was implemented into practice within the organization. The implementation of the best evidence was evaluated for its impact by statistically analyzing adolescent alcohol use prior to and after the implementation of best practice.

Strength and limitations of the Stevens star model. The star model has been utilized in various capacities and settings. Thus, one major strength of this model is its applicability. The star model has been successfully utilized when creating an education for disaster training based on virtual reality simulation. The Stevens star model was also utilized in an EBP project focused on creating educational resources to increase nursing faculty knowledge and competency of EBP. There was a significant increase of self-confidence and competence related to EBP knowledge, suggesting that the star model successfully guided the transformation of knowledge to practice (Orta, et al., 2016). Another strength of this model is that it allows for change in practice to take place at both an individual and organizational level. Furthermore, the ease of understandability of this model aids in a greater success of EBP related to the identification and

management of adolescents using alcohol. There were no policies or guidelines regarding the identification and management of adolescent alcohol use prior to the utilization of this model to guide this EBP project. Thus, the Stevens star model guided the transformation of knowledge for this EBP project so that the providers within the organization were able to utilize a guideline to provide optimal evidence-based care.

Limitations of the star model may include a lack of information on strategies for successful practice change. This model does not address methods of motivating an organization or individuals within the organization to adopt guidelines. For example, there is a lack of definition on addressing individual and organizational culture to foster a successful adoption of EBP. Even though this model aided in creating a guideline based on best-practice evidence, it did not assist in promoting the change within the organization. There is a lack of staff at the school-based clinics within the organization, which can create a barrier to change. However, the facilitator acted as a change agent for the organization to promote successful adoption of the guideline.

Literature Search

An extensive literature search was performed to obtain best practice evidence related to the identification and management of adolescents using alcohol. Databases searched included (a) The Cochrane Library, (b) Joanna Briggs Institute (JBI), (c) Cumulative Index to Nursing and Allied Health Literature (CINAHL), (d) Medline via EBSCO, (e) PubMed, (f) PsycArticles, (g) Trip Database, and (h) citation chasing. The medical subject headings terms (MeSH) of alcohol drinking were utilized in CINAHL and Medline to ensure consistency and efficacy. The keywords utilized to narrow the search included alcohol, binge drink, adolescent, youth, teen, intervention, strategy, counsel, treat, screen, tool, and instrument. The search terms were consistently formatted with Boolean operators and truncation across the databases until the search was comprehensive. Search limiters included peer reviewed, publication date of 2016 to present, adolescent age group, and English language.

Search results. Initial results for Cochrane Library provided six articles for abstract review, JBI resulted in 58, CINAHL resulted in 146 articles, Medline resulted 119 articles, PsycArticles resulted 7 articles, Trip resulted in 97 clinical guidelines, and PubMed resulted 155 articles. Additionally, there were eight articles that were found through citation chasing. The evidence search results are illustrated in table 2.1.

Inclusion and exclusion criteria. Inclusion criteria for articles included articles that addressed screening and brief interventions, specifically motivational interviewing for alcohol use in adolescents. Exclusion criteria included articles that only addressed adults, did not address alcohol, focused on school or family level interventions, articles focused on education or attitudes of staff, articles that did not measure alcohol use outcomes, and computer-based or other electronic deliveries of screening. Articles that included these were excluded due to lack of applicability to setting and population.

Table 2.1

Evidence Search Table

Database	Initial Articles for Review	After Inclusion/Exclusion	Number of Duplicate Articles	Articles Included for Review
Cochrane	6	2	0	1
JBI	58	3	0	1
CINAHL	146	5	4	2
Medline	119	5	3	0
PsycArticles	7	2	0	1
PubMed	155	6	4	1
Trip	97	2	1	1
Citation chasing	8	5	0	3
Total				10

Levels of evidence. The John Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal and Non-Research Evidence Appraisal tools were used to appraise the articles included for review (John Hopkins Nursing Evidence Based Practice, n.d). The strength of evidence is determined according to levels 1 to 5 using these appraisal tools. Level 1 is considered the highest level of research, and typically contains randomized controlled trials (RCTs) and systematic reviews with or without meta-analysis. Level 2 contains quasi-experimental studies, mixed method designs, and systematic reviews that review RCTs and/or quasi-experimental studies. Level 3 evidence typically includes nonexperimental studies, systematic reviews of RCTs, quasi-experimental studies, nonexperimental studies, qualitative studies, or meta-synthesis. Level 4 evidence includes clinical practice guidelines or position statements. Lastly, Level 5 includes evidence that is based on experiential and non-research like expert opinions and literature reviews.

Each of the 10 articles chosen for review were appraised utilizing the appropriate tool this included utilization of either the evidence appraisal or the non-research evidence appraisal. There were five articles that were classified as Level 1 evidence. One article was classified as Level 2, and one article that was a Level 3. There were two clinical practice guidelines that were classified as Level 4. Finally, for Level 5 evidence, there was an expert opinion that was appraised (see Table 2.2).

Appraisal of Relevant Evidence

The John Hopkins Evidence Appraisal tools also contain information about quality rating for each level of evidence. Quality ratings are classified as A for high quality, B for good quality, and C for low quality or major flaws (John Hopkins Nursing Evidence Based Practice, n.d). Each article was appraised after application of inclusion and exclusion criteria. This appraisal helped determine the quality of evidence and applicability to topic.

Level 1 evidence. Barata, et al. (2017) conducted a systematic review of randomized controlled trials (RCTs) of alcohol use disorder (AUD) screening, brief intervention, and referral

to treatment in the emergency department, from 1966 to 2016. Barata, et al. (2017) found and reviewed 35 articles that were relevant to patients 12-70 years old in the emergency department setting. Synthesis of these articles concluded that multiple screening tools were used to identify those at risk for AUD. The authors did not find one tool to be superior; however, the AUDIT was the most frequently discussed tool within the articles synthesized. Brief interventions (BI) and brief motivational intervention (BMI), were compared to usual care or a control group.

Table 2.2

Evidence Levels

Level of Evidence	Articles
Level 1	5
Level 2	1
Level 3	1
Level 4	2
Level 5	1

Note. Adapted from John Hopkins Nursing Evidence Based Practice. (n.d).

Brief interventions are defined as a process to motivate reduction and cessation of substance use by addressing an individual's risks and negative outcomes. The two most common brief interventions are brief cognitive behavioral therapy and motivational interviewing. Brief motivational interventions are brief interventions that contain principles of motivational interviewing. The principles of BMI included asking for permission to discuss use, providing feedback on drinking and consequences, assessing readiness to change, and providing options to help with behavioral changes. All studies used reduction of alcohol consumption as the primary outcome. Out of the 35 studies, 13 of them reported significant differences between the usual care and intervention groups for the main alcohol outcome of number of drink days and number of units per drink day. There was a report of reduction of alcohol consumption in both

the control and intervention groups in 16 studies, but seven of these studies did not result in a significant intervention for the main outcome criteria. Thus, these seven studies did not have statistically significant reductions in alcohol use, but they still had reductions. Furthermore, nine of these studies reported some significant differences between brief intervention and the control group in adolescents with a prior history of drinking and driving. Overall, BI and BMI in the emergency department resulted in a reduction in alcohol use in low to moderate risk alcohol users, with a moderate-quality evidence in adolescents 12 years and older. This was a well-developed high-quality systematic review. This review provides important information about the effectiveness of BI for both adults and adolescents in an acute care environment. The most common forms of BI found throughout these studies is cognitive behavioral therapy and motivational interviewing, or a combination of the two. Cognitive behavioral therapy is a type of therapy often guided by a mental health provider in which the focus is to change behaviors and thoughts. Motivational interviewing is a counseling technique focused on motivating those that are uncertain about change by using a patient-centered collaboration. However, Barata and associates (2017) state that BI can be more effective if motivational interviewing techniques are utilized.

D'Amico et al. (2018) conducted a randomized clinical trial in four Pittsburgh primary care clinics from 2013 to 2015 to assess if a 15-min brief motivational interviewing (MI) intervention, called CHAT, reduced alcohol and marijuana use and consequences. This RCT followed their successful pilot trial. They used rolling enrollment of participants aged 12-18. Every adolescent at the primary care offices were asked to participate, after consent was obtained participants were randomized into either the CHAT or usual care group. Each participant was screened using the NIAAA screening guide to determine alcohol risk. The NIAAA screening guide consists of two age specific screening questions about friends that drink and patient drinking frequency. For adolescents 11-14 the provider first asks if they have any friends that drank alcohol in the past year, and then they ask if the patient has drank any alcohol in the past year.

If they are 14-18 years old, then the provider would ask if the patient drank any alcohol first, and then ask if friends have drank alcohol. Outcomes measured include alcohol use, heavy alcohol use, marijuana use, negative consequences, peer influence, and resistance self-efficacy (RSE). Alcohol use, heavy alcohol use, and marijuana use was measured using a rescaled established measure that asks how many times they drank a full drink, drank 5 or more drinks, or used marijuana. They also assess frequency of marijuana use and largest number of drinks in past 30 days. Well-established questionnaires were used to measure the six negative consequences for alcohol and the four negative consequences for marijuana use. Peer influence was measured by two items that questioned perceived peer use and two items that asked about time spent around peers that use. RSE was defined as the average of four items rated from 1 (definitely would use) to 4 (definitely wouldn't use).

There were 142 adolescents out of 153 that successfully received CHAT, and 141 received usual care. Each outcome was measured in the interventional and control group at three, six, and 12 months. Overall, there was a long-term positive effect of the brief 15-min intervention on both alcohol and marijuana use. There were reductions noted in the interventional group compared to the control group. However, there were few statistically significant results. At 3 months there was statistical significance of perceived peer use. At six and 12 months there was a small significance again for the outcome of peer use, and fewer negative alcohol consequences. Also, there was a marginal effect where adolescents spent less time around peers who drank alcohol. However, these were the only documented statistically significant results. Limitations of this article include only studying participants that are at high risk; whereas, many other articles have found results with low to moderate risk participants. In fact, about 90% of adolescents in this study reported alcohol use, 66% reported heavy alcohol use, and 77% reported marijuana use within the last year. While this RCT did not result in an abundance of statistical significance, it still provides information relevant on the development of a study that measures alcohol use in adolescents.

Foxcroft and Associates (2016) performed a systematic review for the Cochrane Library to assess the effects of motivational interviewing for the prevention of alcohol misuse and alcohol-related problems in young adults. They performed a well-organized review of the literature and found 84 RCTs that were included in the review. It reports that 70 of these studies assessed the intervention in higher risk individuals or settings. Data from a four-month follow-up found that MI was effective at reducing quantity consumed, frequency of consumption, and peak blood alcohol concentration. There was also a marginal effect in favor of MI for alcohol related problems. However, there were no effects found for binge drinking or average blood alcohol concentration, or effects on drink-driving or other alcohol related risky behavior. Overall, there were statistically significant results for the reduction of alcohol use, but the effect sizes were small. This review provides important data on motivational interviewing. Even though the effects were statistically small, and the authors could not confer an advantage in practice. It was apparent that there was a statistically significant reduction in alcohol use. Furthermore, there were no reported harms and the low cost and brevity of the intervention indicate a promising future for MI.

Gyi (2018) reviewed five systematic reviews to create a JBI evidence summary to assess the effectiveness of motivational interviewing to improve health behaviors such as alcohol use, substance abuse, smoking, diet, and exercise. The author found high level evidence to support motivational interviewing for improving health behaviors. Specifically, there was high level evidence that assessed MI against standard of care for alcohol use in adolescents. Overall, the best practice recommendations suggest that MI should be considered when the goal is to help people change behaviors that put them at risk. This evidence summary may have focused on many different health behaviors in both adults and adolescents, but the recommendation statement supports MI to change behaviors in many capacities. Thus, this article aids in the management of adolescents at risk of alcohol use.

Tripodi, Bender, Litschge, and Vaughn (2010) completed a meta-analytic review to assess the effectiveness of substance abuse interventions and their ability to reduce adolescent alcohol use. The authors performed a well-organized review of the literature that resulted in 16 studies and 26 outcomes that were used for the sample. The main outcomes measured include abstinence, frequency of alcohol use, and quantity of alcohol use between one month and one year on completion of intervention. Treatment types found within the literature included, active aftercare, assertive continuing care, brief interventions, brief interventions with adolescent only, brief interventions with adolescent and one parent, brief motivational interviewing, behavioral treatment, brief strategic family therapy, cognitive behavioral therapy, multidimensional family therapy, and multisystemic therapy. Overall, all treatment types resulted in a medium effect on reduction of alcohol use for adolescents. However, brief motivational interviewing had a large effect size on reducing alcohol consumption. Also, individual only interventions had a larger effect size than family-based interventions. Individual interventions take place in privacy with only the patient and provider participating, whereas, family interventions focus on the patient and their family. This meta-analysis provides important information on different treatment options, and the treatment option that had the largest effect size.

Level 2 evidence. Tanner-Smith and Risser (2016) conducted a meta-analytic study to examine if the effects of brief alcohol interventions for adolescents with a focus on different measurement characteristics of alcohol outcomes effects the intervention. A thorough literature search resulted in 190 studies including RCTs and quasi-experimental designs. With these studies, the authors performed a meta-analysis to measure the average effects of brief interventions, variation in the effects of brief interventions associated with type of alcohol outcome, variation across different assessment instruments, and variation across alcohol outcomes with different reference periods in youth and young adults. The variation in the effects of brief interventions associated with type of alcohol outcome assessed different interventions, like MI and cognitive behavioral therapy, against different types of outcomes, like reduction or

abstinence. The authors also wanted to determine if different screening tools would have significant variations. However, the primary goal was to assess if different brief interventions affected different outcomes. For the purpose of this study, only results for adolescents, 11-18 years, are reported. Average effects of brief alcohol interventions resulted in significantly lower levels of alcohol consumption than those in comparison. The comparison interventions include cognitive behavioral therapy, behavioral therapy, multidimensional family therapy, multisystemic therapy, brief strategic family therapy, and even combinations of therapies. Variability of outcome construct types compared to the reference outcome of abstinence resulted in a significantly smaller mean effect size in adolescents. Regarding screening, the authors used the alcohol use disorders identification test (AUDIT) as their main reference tool. There were no differences in mean effect sizes when comparing the screening reference tool AUDIT to other screening tools. Lastly, there were no intervention effects varied across the reference period. This article provided information that will aid with determining intervention, screening tool, and measured outcomes for this project.

Level 3 evidence. Newton and associates (2018) conducted a systematic review to describe when and how brief interventions reduce alcohol use and alcohol-related consequences among adolescents. A well-developed literature review resulted in 13 interventional studies including RCTs, quasi-experimental studies, and qualitative studies on adolescents up to the age of 18 years. The authors described patterns of delivery context, intervention features, and patient outcomes. The authors also reviewed intervention mechanisms by examining intervention features, provider behaviors and patient indicators. Review of the literature determined that there are three potential intervention mechanisms: eliciting and strengthening motivation to change, providing direction through interpretation, and peer risk. MI can have clinically significant reductions in alcohol use and alcohol-related problems when delivered to adolescents with low-to moderate risk. Also, addressing peer risk can change the behavior of adolescents regarding their use of alcohol. This article provided

great information on MI and how to construct the MI to hopefully elicit significant reductions in alcohol use.

Table 2.3

Evidence Appraisal

Citation	Purpose	Design	Sample	Measurements/Out comes	Results/Findings	Level/ Quality
Barata, Shandro, Montgomery, Polansky, Sachs, Duber, Weaber, Heins, Owen, Josephson, Macias-Konstantopoulos, 2017, Effectiveness of SBIRT for alcohol use disorders in the emergency department	Review the effectiveness of brief interventions in the ED to reducing alcohol intake and preventing alcohol related injuries.	Systematic review	35 RCTs, six of which specifically about adolescents aged 13-21.	reduction of alcohol consumption	Overall, the results were inconclusive. However, BI in the ED did demonstrate a small number of reductions in alcohol use in low or moderate drinkers, reduction in negative consequences, and a decline in ED repeat visits.	Level 1/ A
D'Amico, Parast, Shadel, Meredith, Seelam, & Stein, 2018, Brief motivational	Determine if a 15 min brief motivational interviewing intervention	RCT	294 adolescents aged 12-18. 142 participants received the	Drinking, heavy drinking, negative alcohol consequences, marijuana use,	Overall, there was a long-term positive effect of the brief 15-min intervention on both alcohol and marijuana use. There were reductions noted	Level 1/ A

interviewing intervention to reduce alcohol and marijuana use for at-risk adolescents in primary care	(CHAT) in primary care reduced alcohol and marijuana use for at-risk adolescents		intervention successfully, while 141 received usual care	negative marijuana consequences, perceived peer use, time spend around peers who use, and resistance self-efficacy. Outcomes were assessed at 3,6, and 12 months.	in the interventional group compared to the control group. However, there were few statistically significant results. At 3 months there was statistical significance of perceived peer use. At six and 12 months there was significance again for the outcome of peer use, and fewer negative alcohol consequences. Also, there was a marginal effect where adolescents spent less time around peers who drank alcohol.	
Foxcroft, Coombes, Wood,Allen, Almeida Santimano, & Moriera, 2016, Motivational interviewing for the prevention of	Assess effects of MI for preventing alcohol misuse and alcohol-related	Systematic Review/ Meta-analysis	84 RCTs with a total of 22,872 young adults up to the age of 25 years.	Primary: quantity of alcohol consumed, frequency of alcohol consumption, average BAC, and peak BAC, binge drinking, and	There were effects in favor of MI for the quantity of alcohol, frequency of consumption, and peak blood alcohol concentration. There were marginal effects in favor of MI for alcohol problems, but no effects on binge drinking. It	Level1/ A

alcohol misuse in young adults	problems in young adults			alcohol abuse/dependence. Secondary: Drink-driving, DUI, alcohol related risky behaviors.	was concluded that there was a high risk of bias which resulted in moderate to low quality evidence. There were no effects in favor of MI for the secondary outcomes.	
Gyi,2018, Motivational interviewing to improve health behaviors: Substance abuse/smoking/ HIV risk/ diet/ exercise	Assess the effectiveness of MI on improving health behaviors such as excessive alcohol use.	Systematic review/evidence summary	5 systematic reviews	Effectiveness of MI	Best practice recommendations suggest that MI should be considered as part of care to help foster change. Especially in behaviors that pose a significant threat, including adolescent alcohol use.	Level 1/ A
Kaiser Permanente, 2016, Alcohol use in Adolescents (13 through 17) screening and intervention guideline	Assist providers in choosing appropriate health care for adolescents that use alcohol	Clinical guideline	Adolescents 13-17 years	NA	Broad concepts include: 1) confidentiality; 2) Screening with the CRAFFT; 3) Management of comorbidities; 4) Brief counseling interventions; 5) assessment for alcohol use disorder (AUD); 6) Management of AUD	Level 4/ A

Newton, Mushquash, Krank, Wild, Dyson, Hartling, & Stewart, 2018, When and how do brief alcohol interventions in primary care reduce alcohol use and alcohol-related consequences among adolescents	Describe when and how BI delivered to adolescents in primary care settings reduce alcohol use and alcohol-related consequences	Systematic review	13 interventional studies including RCTs, quasi-experimental studies, and qualitative studies on adolescents up to the age of 18 years.	Patterns of delivery context, intervention features, and patient outcomes. Intervention mechanisms by examining intervention features, provider behaviors and patient indicators	There are three potential intervention mechanisms: eliciting and strengthening motivation to change, providing direction through interpretation, and peer risk. MI can have clinically significant reductions in alcohol use and alcohol-related problems when delivered to adolescents with low-to moderate risk. Also, addressing peer risk can change the behaviors of adolescents.	Level 3/ A
National Institute on Alcohol Abuse and Alcoholism (NIAAA), & American Academy of Pediatrics, 2015, Alcohol screening and brief intervention for	Assist practitioners at identification and management of adolescents at risk for	Clinical Guideline	Youth, 9-18 years of age at healthcare visits, even acute care visits.	NA	Broad guidelines include: 1) ask two age-specific screening questions; 2) If they don't drink guide the patient, if they do drink assess risk; 3) advise and assist; 4) follow-up, continue support	Level 4/ A

youth: A practitioner's guide	alcohol-related problems					
Levy & Williams, 2016, Substance use screening, brief intervention, and referral to treatment	Provide a simplified SBIRT approach for adolescents that can be used with the AAP policy statement	Expert opinion	Adolescents, 12 years- early 20's	NA	Key points of the clinical report include: 1) confidentiality; 2) screening; 3) brief intervention; 4) referral to treatment. Confidentiality is a large determinant on if adolescents will seek care, share honest answers, and engage with providers. The screening tools that are the best include the lowest number of succinct validated questions that elicit accurate responses. The focus of brief intervention should be on encouraging healthy choices and is generally a short-structured conversation. Referral to treatment is needed for patients that require more extensive evaluation and care.	Level 5/ A

Tanner-Smith, & Risser, 2016, A meta-analysis of brief alcohol interventions for adolescents and young adults: Variability in effects across alcohol measures	Examine the effectiveness of brief alcohol interventions for adolescents and young adults	Meta-analysis	190 studies including RCTs and quasi-experimental designs.	Average effects of brief interventions, variation in the effects of brief interventions associated with type of alcohol outcome, variation across different assessment instruments, and variation across alcohol outcomes with different reference periods.	Average effects of brief alcohol interventions resulted in significantly lower levels of alcohol consumption than those in comparison. Variability of outcome construct types compared to the reference of abstinence resulted in a significantly smaller mean effect size in adolescents. There were no differences in mean effect sizes when comparing the screening reference tool AUDIT to other screening tools. Lastly, there were no intervention effects varied across the reference period.	Level 2/ A
Tripodi, Bender, Litschge, & Vaughn, 2010, Interventions for reducing adolescent alcohol abuse	Assess effectiveness of substance abuse interventions for their ability	Meta-analysis	16 studies including 14 RCTs and 2 quasi-experimental	Abstinence, frequency of use, quantity of alcohol use.	All treatment types including brief motivational interviewing, cognitive behavioral therapy with 12 steps, cognitive behavioral therapy with aftercare, multidimensional	Level 1/ A

	to reduce adolescent alcohol use				family therapy, brief interventions with the adolescent, and brief interventions with the adolescent and a parent resulted in a medium effect on reduction of alcohol use for adolescents. However, brief motivational interviewing had a large effect size. Also, individual only interventions had a larger effect size than family based	
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Level 4 evidence. Kaiser Permanente (2016) created a clinical practice guideline to assist providers on management of alcohol use in adolescents 13-17 years of age. This guideline discusses confidentiality considerations for adolescents including those 13 years and older can consent to confidential treatment. If they need a referral the provider must have permission to inform parent unless their safety is at risk. This guideline suggests using the CRAFFT tool, which is an acronym for car, relax alone, forget, friends, trouble, and gives information on how to interpret the results. Management of comorbidities is addressed as they can occur simultaneously or sequentially in patients that are suspected to have AUD. Brief counseling interventions are also discussed. If the participant scores a one or under on the CRAFFT, then anticipatory guidance is recommended. Yet, if they score a two or higher, then a brief intervention of 5-15 minutes and a referral is suggested. The guideline also gives key points on what to address during the BI such as, express concern, provide feedback, offer advice, elicit response, assess readiness to change, and encourage referral. Lastly, the guideline discusses that the response to BI should be assessed. This guideline provides easy to follow best practice recommendations.

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) in conjunction with the American Academy of Pediatrics (2015) produced a clinical practice guideline on alcohol screening and brief intervention for youth to help guide practitioners care. This guideline is similar to the Kaiser guideline, except that the NIAAA created two initial age specific screening questions based on age. If the patient answers no to these questions, then they would just receive reinforcement. However, if they answer yes then they would be assessed for low, moderate or high risk using the age specific chart provided or a formal tool. Formal tools suggested are the CRAFFT and AUDIT tools. The risk level dictates the extensiveness of the brief intervention. For example, no risk would receive reinforcement, and moderate risk would receive motivational interviewing. This is outlined clearly in the guideline. The last step to this guideline is follow-up and continued support. A strict timeline for follow-up was not specified, but

the authors encouraged to follow-up within four weeks after initial visit. During this follow-up a provider should reassess alcohol use and to discuss if goals were met. It is important to assess if the patient met their goals and determine if a more intensive intervention is required. The NIAAA also described how to address confidentiality with adolescents, specifically with a sensitive topic such as this. This guideline also provides a guide on how to identify and manage adolescents as risk for alcohol use.

Level 5 evidence. Levy and Williams (2016) from the American Academy of Pediatrics Committee on substance use and prevention formed an expert opinion on screening, brief intervention, and referral to treatment (SBIRT) in adolescents 12 years old to young adults in their early 20s. The goal was to provide a simplified SBIRT approach for adolescents that can be used with the AAP policy statement. This expert opinion also provided vital information on the importance of confidentiality and how to ensure it. Screening is discussed, and multiple screening tools are addressed. Some screening tools have not been discussed yet, but the validity of the CRAFFT tool was discussed. The extent of brief intervention is discussed based on level of risk. If they are negative for use, then they would receive positive reinforcement, where the provider would encourage continued good decision making. Moderate to low risk would receive brief MI, which would consist of a short-structured conversation that are based on the principles of motivational interviewing to assist the patient with motivation to change. Lastly, high risk, or those suspected to have a dependence, would be referred to services that can provide appropriate care. This expert opinion furthers the information on SBIRT and use of motivational interviewing for adolescents using alcohol.

Construction of EBP

Synthesis of Critically Appraised Literature

The review of literature provided an in-depth picture of the alcohol use crisis in adolescents and identified ways to identify and manage those at risk for alcohol use and alcohol related consequences. Appraisal of the evidence identified recommendations across the

literature. These common recommendations include (a) screening, (b) brief intervention, and (c) confidentiality.

Screening. After review of the literature, a common theme was the importance of screening adolescents for alcohol use in a multitude of settings. The two practice guidelines, expert opinion, and two systematic reviews all suggest the screening of adolescents due to severe alcohol-related consequences that adolescents can face (Kaiser Permanente, 2016; Levy & Williams, 2016; Newton, et al., 2018; NIAAA, 2015). Consequences related to alcohol include death, failing grades, arrest, disruption of normal growth, higher risk of suicide, memory problems, and changes in brain development. The tool that was most consistently discussed across the literature was the CRAFFT tool. However, the NIAAA (2015) guideline suggests that their screening tool be used initially then followed with a more formal tool. The NIAAA suggest utilizing the CRAFFT tool or the AUDIT as they are reliable and valid. Thus, the two question NIAAA screen will be utilized prior to the CRAFFT tool for this EBP project. While the CRAFFT tool and the AUDIT tool are both reliable and valid, the CRAFFT tool was selected because it is the most consistent tool found in the literature.

Brief intervention. The literature appraisal suggested that there were many interventions that could be used in the management of adolescent alcohol use. However, brief interventions, more specifically motivational interviewing, was the intervention discussed consistently in each article appraised. Motivational interviewing (MI) is a patient-centered style of counseling that explores a patient's feelings about change. The goal of MI is to provide a friendly collaboration to elicit motivation to change from within the patient. The clinician will assist the patient on exploring these feelings towards resistance to change and guide them to a resolution. There is no single way to conduct MI. However, there are four main principles including expressing empathy or concern, developing discrepancy, rolling with resistance, and supporting self-efficacy. Expressing empathy includes actively listening to the patient and reflecting on what the patient said all while remaining friendly and nonjudgmental. Developing

discrepancy includes raising awareness of the patient's personal consequences and asking how their goals, or beliefs are hindered by drinking. Roll with resistance is where the clinician will acknowledge the patient's beliefs and feelings and affirm autonomy if they express resistance. Lastly, the clinician will support self-efficacy by expressing confidence in the patients' ability to change and to address their strengths (NIAAA, 2015).

MI was originally created to help counsel adults with alcohol use disorder and has had great success with this and other negative health behaviors (Gyi, 2018). It is important to maintain the patient's goal in the process of MI. Both the systematic review by Newton and associates (2018) and the guideline by Kaiser (2016) discuss and give examples of what should be said and included in the MI. Newton and associates (2018) discussed three mechanisms identified among motivational interviewing. The first mechanism is to elicit and strengthen motivation to change by taking a collaborative, non-confrontational approach and supporting the adolescent's self-efficacy. The second mechanism is to provide direction through interpretation of adolescent behaviors and statements. The last mechanism of MI is assessing and addressing peer risk and influence (Newton, et al., 2018). Kaiser Permanente (2016) also outline how to conduct the intervention by first expressing concern, providing feedback linking drinking to safety, offering advice, eliciting a response, assessing readiness to change, supporting goal setting, and encouraging referral for those that are at high risk. An example of what to say regarding expressing concern is, "I'm concerned that you are drinking enough to cause other serious problems in your life (Kaiser Permanente, 2016, p. 7)". Furthermore, they also have information on more resources for motivational interviewing including a link to a training video. A follow-up should be performed to assess if the MI had the desired effect. If it did not, or if the adolescent is a high risk, then they should be referred to more extensive specialized care (Kaiser Permanente, 2016; Levy & Williams, 2016; NIAAA, 2015).

Confidentiality. This theme is an important consideration when assessing and managing a minor. Adolescents are more willing to divulge information and seek care when they

can be assured confidentiality. Numerous major medical organizations have published statements on confidentiality and informed consent. Furthermore, many laws support the decision to provide confidential care (Kaiser Permanente, 2016; Levy & Williams, 2016; NIAAA, 2015). According to the Indiana code 12-23-12-1, a minor may provide consent for drug and alcohol related care (English, Bass, Boyle, and Eshragh, 2010). Thus, for this EBP project patients were asked for consent to participate in a confidential project. They were screened and provided with motivational interviewing without parents or guardians present. Parents will be given basic information about the project if present, and confidentiality will only be broken if there is an immediate risk for serious harm or injury.

Best Practice Model Recommendation

The goal of the EBP project was to identify and manage adolescents at risk for alcohol use and alcohol-related consequences within an organization that currently does not have a policy in place regarding this topic. Best practice for identification of adolescents at risk was found to be the two questions created by the NIAAA and the CRAFFT tool. Additionally, best practice found in the literature for management was brief intervention, more specifically motivational interviewing. Motivational interviewing is recommended in adolescents that are at a low to moderate risk. Management and reduction of alcohol use was the primary focus of the EBP project; however, identification must occur prior to the management. A screening tool was created containing the NIAAA questions, CRAFFT tool, and additional alcohol related questions to be utilized as the pre-test to determine initial alcohol use. The patients also received additional questions about the amount and frequency of alcohol used. Those that score as a low to moderate risk on the CRAFFT tool will receive motivational interviewing in one 15-minute session. Then, they received a follow-up appointment at 4-weeks and 8-weeks after intervention where the screening tool was used again to assess for a reduction in alcohol use. If alcohol use is not reduced, then the patient will be referred out the organization's behavioral health team for further treatment. Thus, the PICOT question of "In adolescents 13-18 years old that seek health

care at a school-based clinic (P) how does the implementation of an SBIRT policy that focuses on motivational interviewing (I) decrease underage alcohol use (O) at 4 and 8-weeks post-intervention” was addressed.

CHAPTER 3

IMPLEMENTATION OF PRACTICE CHANGE

Implementation of this evidence-based practice (EBP) project was executed from September 2019 to January 2020 and utilized the Star model to guide evidence-based practice. Goals for the implementation period included successful initiation of the best practice policy for the management and reduction of alcohol use in adolescents in an organization that runs two school-based clinics.

Participants and Setting

The setting for implementation of this EBP project was at two northwestern Indiana junior/ senior high school school-based clinics. Those eligible to receive care here include high-school students within the school, students at other local schools, and staff members of the school systems. The school-based clinics are part of a larger health care organization that has multiple clinics in northwestern Indiana. Each school-based clinic within this organization has a staff that includes a receptionist and a nurse practitioner. Permission for project implementation was obtained from the project facilitator and the organization's quality management team. The nurse practitioner at one of the school-based clinics observed an area of concern such as students openly admitting to using alcohol. She also reported that many students are in trouble related to alcohol or substance use or they live in a situation where they aren't taught the negative effects of alcohol use. The nurse practitioner expressed concerns regarding the overall wellbeing of the patients and was seeking ways to promote a healthy lifestyle in regards to the reduction of alcohol use. Thus, after explaining the evidence found and project plan, it was decided that the implementation of this project would benefit the organization and patients seen. The participants included in this study were adolescents aged 13 to 18 years of age, which was supported in the literature. All adolescents that fall between the age range are eligible to participate in the project and the project had a rolling enrollment. A rolling enrollment is where participants will be eligible to participate during a set period of time. For this project, the rolling

enrollment period started in October and ended in December 2019. The follow-up appointments ended in February 2020. Participants were recruited if they had an appointment at the clinic, or if they were a walk-in that had a signed consent to be seen at the school-based clinic on file. Each participant was sent home with an informational letter after their appointment (see appendix A). However, meetings were held on September 26th and 27th 2019 to address the students and hand out the informational letter. The school principal also sent out the informational letter and a typed email describing the EBP project to all parents and guardians to ensure that they had ample opportunities to receive this information.

Pre-Intervention Group Characteristics

Currently, there are no policies in place that enforce screening and management of adolescents that use alcohol within the organization. The pre-intervention group consisted of adolescents 13-18 years old that were being seen at the organization for any type of visit.

Intervention

A systematic search was conducted to obtain evidence supporting the intervention. Literature was synthesized and appraised to obtain best practice recommendations for the intervention. The project consisted of implementing screening and brief intervention for adolescent alcohol use. Multiple existing guidelines were found for this topic. The elements retrieved from the guidelines were utilized to form a policy that meets the specific needs of the organization to reduce alcohol use in adolescents (see appendix B).

The policy that was developed focused on a step by step approach of screening and motivational interviewing. There are two parts included in screening and both were self-administered in paper format. The first part consisted of two questions recommended by the NIAAA that help predict current and future risk of alcohol use. The questions consist of personal drinking frequency and having friends that drink. For adolescents 13-14 years old, the question about friends drinking alcohol in the past year was asked prior to the question of the patient's personal consumption alcohol as a method to approach this sensitive topic in a non-threatening

manner (see appendix C). However, for participants 15 and older they were asked if they drank any alcohol prior to the question of friends drinking alcohol, which is illustrated in appendix D (NIAAA, 2015; Levy and Williams, 2016).

The second part of screening included the formal CRAFFT tool (see appendices C and D). CRAFFT is an acronym car, relax, alone, forget, friends, and trouble. Each word in the CRAFFT tool represents a question related to that word. This tool also can be utilized to determine if the participant is low or no risk, moderate risk, or high risk. Low risk is a score of one or less, moderate risk is a score of two or three, and high risk is a score of 4 or higher (NIAAA, 2015; see also Kaiser Permanente, 2016). Those that scored a low risk received positive encouragement for good decisions. Moderate and high risk received a 15-minute session of motivational interviewing; however, high risk was also referred to the organizations' behavioral health for further specialized treatment.

Furthermore, if a patient is positive for alcohol use, further questions concerning use will be administered in paper format on the same handout as the CRAFFT tool and NIAAA screener. This included quantity of alcohol consumed in the past month and number of days a patient consumed alcohol in the past month. Questions were developed from the evidence that discussed various methods of measuring alcohol consumption outcomes (Barata, et al., 2017; D'Amico, et al., 2018; Tanner-Smith and Risser, 2015). The goal of these additional questions is to help the practitioner assess for positive changes at follow-up appointments. See appendix C for complete screening packet for adolescents 13 and 14 years of age, including other questions

Evidence supported motivational interviewing as a means of reducing adolescent alcohol use. Motivational interviewing was administered in a single session by the nurse practitioner to patients that were positive on the NIAAA screener and CRAFFT tool in the confidential exam room without parents or guardians present. A positive score was considered a score of two or more on the CRAFFT tool. Each motivational interview was 15 minutes long and tailored to that

patient's specific needs, values, beliefs, perceptions, and goals to ensure successful motivation to change. There are no prescribed single methods for motivational interviewing. However, there will be four basic principles addressed which include expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy. The providers received education on how to provide effective motivational interviewing from a 53-minute educational video provided by Paul Warren from the NDRI-USA Inc. (2015). Participants that are high-risk received motivational interviewing and are referred to the clinics' behavioral health to ensure their safety.

Comparison

The pre-intervention group of initial NIAAA, CRAFFT score and risk additional questions were compared to the post-intervention group. The post-intervention group included the NIAAA screener, CRAFFT score, and additional questions obtained at the follow-up appointments four and eight weeks after receiving MI as determined by the initial screening. The synthesized evidence supported a follow-up appointment but there were no specified time periods recommended for the follow-up. However, the NIAAA recommended follow-up within a month; thus, the follow-up appointments were scheduled at four weeks and eight weeks after the initial appointment with the same provider that completed the motivational interviewing. The post-intervention follow-up appointment was also conducted confidentially without a parent or guardian present. The pre-intervention screening scores were compared to the post-intervention screening scores.

Outcomes

The primary outcome for this EBP project was a reduction in alcohol use in adolescents that are seen at a school-based clinic in northwestern Indiana. The impact of motivational interviewing was assessed by comparing the pre-intervention data regarding alcohol use from the initial screening scores obtained in the screening packet and the post-intervention data from the subsequent scores in the screening packets obtained at the follow-up appointments. The

data for the project was collected by the project coordinator and the nurse practitioner using the screening tools obtained from the evidence synthesis. Additional data was obtained using a self-developed demographic questionnaire that is attached to each age-based screening packet.

Time

The training began in August of 2019 before the start of the school year. The intervention phase went from October 2019 and concluded in February of 2020. Thus, the last date for participants to join was December 2019 to allow for an appropriate follow-up appointment. The start of implementation was initially targeted for September 2019 because of the large influx of patients that receive care at the clinic during the first few weeks of the school year. Patients will often have appointments at the beginning of the school year to receive necessary vaccinations or sports physicals.

Protection of Human Subjects

IRB approval was sought from the Valparaíso University IRB committee and the project did not classify as needing approval being that it is an evidence-based practice project. NorthShore's quality management team gave approval for this project to be initiated at the two on-site high school clinics. An information letter that contained details on the EBP project was sent out to parents/guardians of adolescents 13 to 18 years of age (see appendix A). Confidentiality was upheld by initiating security measures regarding data. Data collection did contain demographic data but there were no specific identifiers. Additionally, findings were disseminated as group data. Confidentiality was also upheld by providing intervention and screening without parent's present. If a parent is present, they are asked to leave the room and provided with basic information about the study and the importance of confidentiality. Participants were notified that information would remain confidential unless they are at a high safety risk or risk for immediate danger. Notification of breach in confidentiality will be given as soon as possible to the participant and the exact information to be disclosed will be discussed.

Chapter 4

FINDINGS

The purpose of this EBP project was to implement an evidence-based policy that assists providers in identification and management of adolescent alcohol use with a main goal of decreasing alcohol use. The policy consisted of screening adolescents 13-18 years of age with a self-administered screening packet. Then, depending on the results of the screening, moderate to high risk adolescents received MI and then were reassessed at follow-up appointments four and eight-weeks post intervention. Identification was facilitated with a paper tool that contained the NIAAA two-question screener, CRAFFT tool, and additional questions. The additional questions were pertinent as they assessed number of days alcohol was consumed and the number of drinks consumed in the past 30 days, unlike the CRAFFT and NIAAA tools that question about alcohol use over the past 12 months. The management of adolescents that use alcohol consisted of providers utilizing a 15-minute patient centered motivational interviewing (MI) session for adolescent patients that scored a two or above on the CRAFFT tool. Patients that scored a four or higher on the CRAFFT also received MI but were referred to behavioral health to ensure they receive proper care. Patient outcomes were measured using the self-administered tool that contained the NIAAA two-question screener, CRAFFT tool, and additional questions again at 4 and 8-weeks post initial screening and MI. The primary outcome was to assess for reduction in adolescent alcohol use as measured by the CRAFFT tool and additional questions. Secondary outcomes included assessing for friends that drink utilizing the NIAAA two-question screener, and to assess the risk level (low/no, moderate, or high) as categorized by the total CRAFFT score. Both patient demographic and outcomes were analyzed.

Sample

Size

At the implementation of the project, there were 39 participants that completed the self-reported screening packet. Of these 39 participants that were screened, 10 of them had a score of two or higher on the CRAFFT tool that made them eligible to receive MI. A CRAFFT score of 2 or higher was determined to be an optimal cut point for identifying substance use disorder, which includes alcohol use, in adolescents (The Center for Adolescent Substance Use Research, 2019). All 10 participants who scored at a 2 or above, completed the 4-week follow-up where they were rescreened using the NIAAA two-question screener, CRAFFT tool, and additional questions for an attrition rate of 0%. However, only two participants were able to complete the rescreening using the aforementioned screening tools at the 8-week follow-up due to circumstances discussed later yielding an attrition rate of 80%. Thus, data from the 8-week follow-up was unable to undergo analysis, and only data from the initial screening and 4-week follow-up was analyzed.

Characteristics

Demographic characteristic for participants that completed the initial screening ($n=39$) were analyzed using descriptive statistics. However, not every participant was eligible to receive the intervention; thus, demographic characteristics for only the participants that received MI ($n=10$) were analyzed for consistency. The characteristics of age and grade were reported via mean, range, and standard deviation, while gender and race were reported via frequencies.

Participants that completed screening. Participant ($n=39$) ages ranged from 13 to 18 years with a mean of 15.41 ($SD= 1.71$). Participants grade levels ranged from 7th to 12th with a mean of 9.64 ($SD=1.75$). The majority of participants were female (59%) and African American (35.9%). Other ethnicities included Asian Pacific Islander (2.6%), Caucasian (28.2%), Hispanic (20.5%), other (10.3%), and those that preferred not to answer (2.6%).

Participants that received MI. Participant ($n=10$) ages ranged from 13 to 18 years with a mean of 16.00 (SD= 1.94) and most participants were 17 years (40%) (Figure 4.1). The grade levels ranged from 7th to 12th with a mean of 10.10 (SD=1.79) with most participants in 11th grade (40%) (Figure 4.2). The majority were female (60%) (Figure 4.3) and African American (50%) (Figure 4.4). Other ethnicities included Caucasian (20%), Hispanic (10%), and other (20%). Descriptive statistics involving demographic data for participants that received the intervention are represented in Table 4.1.

Table 4.1
Demographic characteristics for participants that received MI

Demographic	Frequency (%)
Number of participants	10 (100%)
Age	
Mean/SD	16.00/ 1.94
Range	13-18
13 years	2(20%)
14 years	1 (10%)
15 years	0 (0%)
16 years	1 (10%)
17 years	4 (40%)
18 years	2 (20%)
Grade	
Mean/SD	10.10/ 1.79
Range	7-12
7 th grade	1 (10%)
8 th grade	2 (20%)

9 th grade	0 (0%)
10 th grade	1 (10%)
11 th grade	4 (40%)
12 th grade	2 (20%)

Race

African American	5 (50%)
Caucasian	2 (20%)
Hispanic	1 (10%)
Asian/Pacific Islander	0 (0%)
Other	2 (20%)
Prefer not to answer	0 (0%)

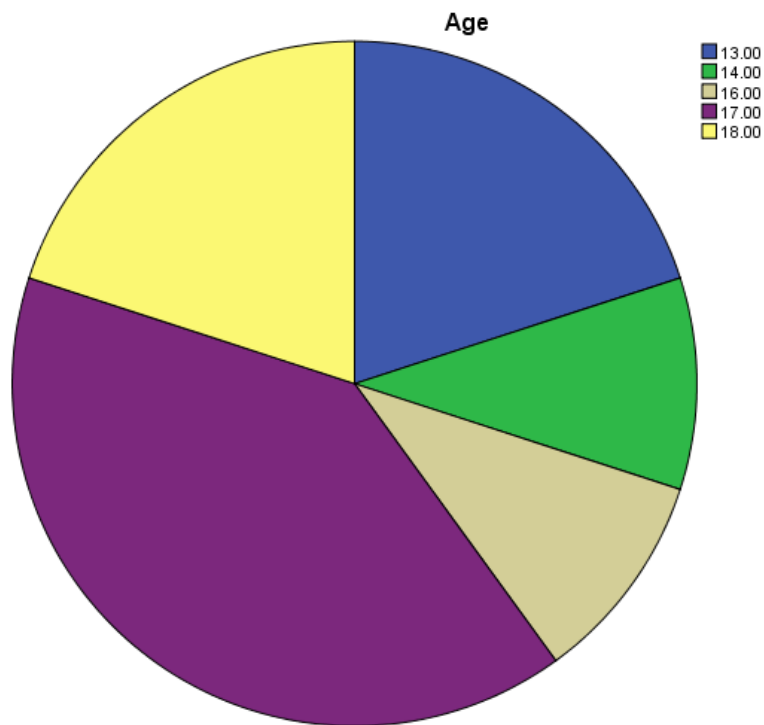


Figure 4.1. Age Pie Chart

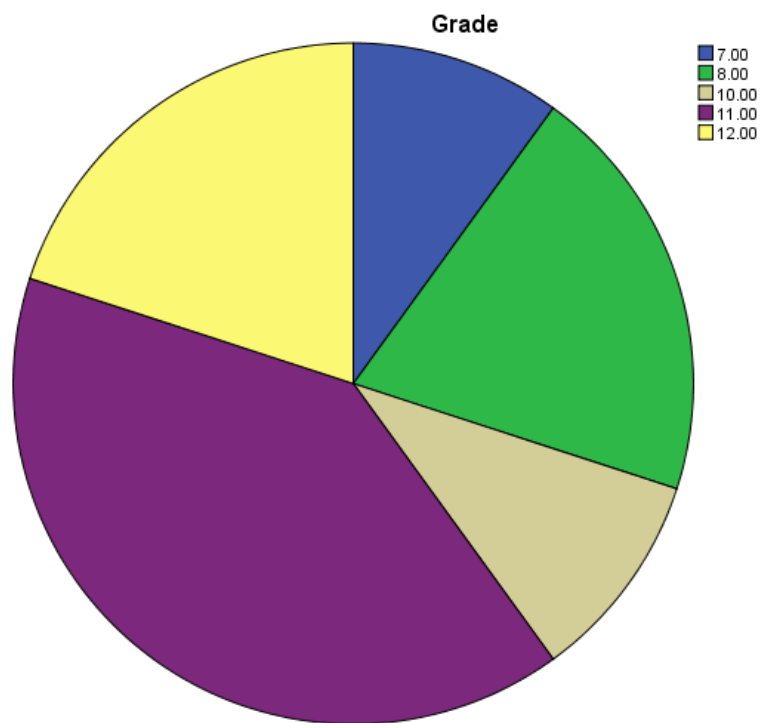


Figure 4.2. Grade Pie Chart

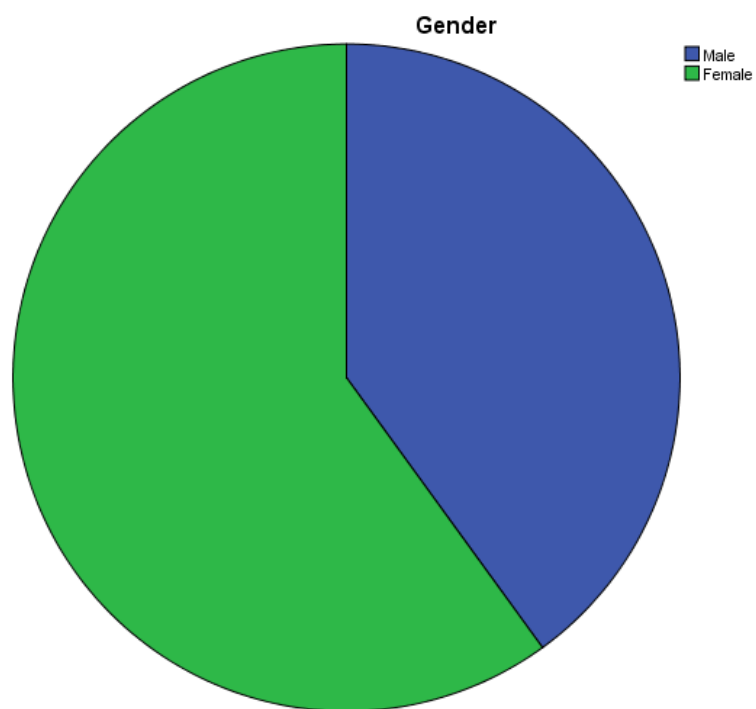


Figure 4.3. Gender Pie Chart

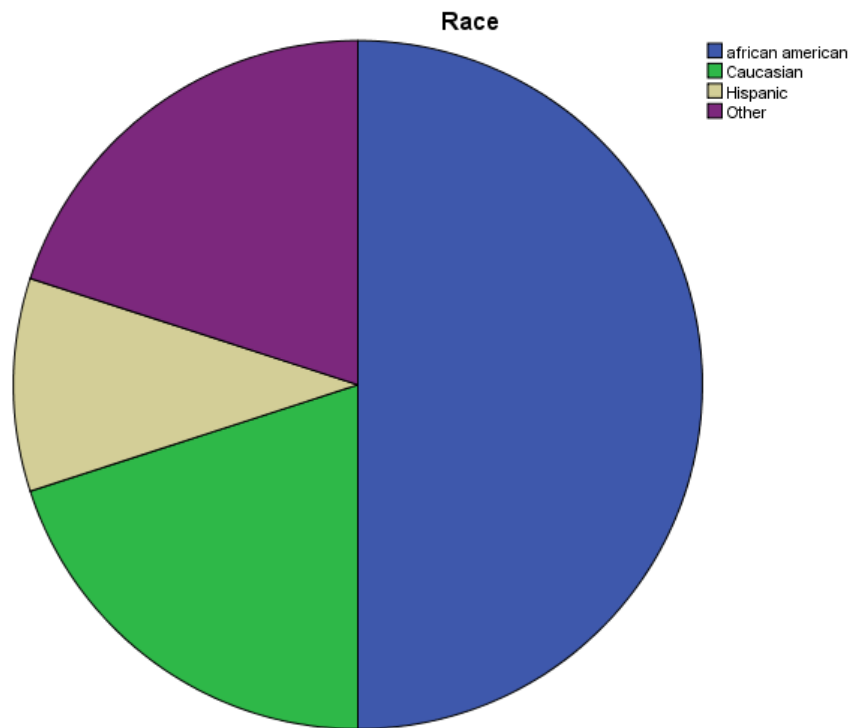


Figure 4.4. Race Pie Chart

Intervention Information

As previously mentioned, the policy consisted of screening, brief intervention that consisted of MI and/or referral to treatment when applicable. Adolescents (13-18 years) that were seen at the school-based clinic received a self-administered packet that contained the NIAAA two-question screener, CRAFFT tool, and additional questions. The CRAFFT score determined if the adolescent qualified to receive the brief intervention. Motivational interviewing was the brief intervention recommended throughout the literature for adolescents that scored a 2 or higher on the CRAFFT tool in the screening packet. Furthermore, those that scored a 4 or higher were also referred to the organization's behavioral health office. Of the 39 participants screened, 10 of them received MI. Of those 10 participants, 2 (20%) were referred to behavioral health for further treatment after receiving MI. However, one of the participants that required referral was already receiving therapy for alcohol use at an office outside of the organization. All the participants (100%) of the sample that received MI were present at their 4-week follow-up

appointments. However, only 2 (20%) received an 8-week follow-up. Thus, data from the 8-week follow-up appointments will not be included.

Changes in Outcomes

This EBP project addressed the following PICOT question “In adolescents 13-18 years old that seek health care at a school-based clinic how does the implementation of an SBIRT policy that focuses on motivational interviewing decrease underage alcohol use at 4 and 8-weeks post-intervention?” The primary outcome of decreased alcohol was measured using the CRAFFT tool, and additional questions at baseline and at 4-weeks post-intervention. Secondary outcomes included measuring risk level and the effect of MI on friends drinking which was measured using the NIAAA two-question screener.

Statistical testing

Data analysis was performed utilizing the Statistical Package for Social Sciences (SPSS) Version 22. The process of analysis and interpretation was aided with the text titled *How to use SPSS: A step-by-step guide to analysis and interpretation* by Cronk (2018). A paired t-test was used to determine if there was a difference between participants' answers in the screening packet (CRAFFT [see Tables 4.2 and 4.3], NIAAA [see Table 4.2 and 4.5], and additional questions [Table 4.2] at initial screening and 4-week follow-up. A chi-square test of independence was utilized to evaluate the dichotomous variable of Question 1 on the NIAAA for Adolescents 13-14 Years (see Table 4.5). The secondary outcome of risk level was also evaluated utilizing a chi-square test of independence (see Table 4.4). Statistical significance was determined as $p < 0.05$ for all analyses.

Primary outcome

As aforementioned, the primary outcome was to assess for a reduction in adolescent alcohol use. The screening tool utilized for this project was multifaceted and measured more than the primary outcome, refer to Appendices C and D starting on page 76. The primary

outcome was measured utilizing the CRAFFT screening tool and additional questions. However, it is important to note that the NIAAA two-questions screener had a question on both versions of the tool (NIAAA2young, and NIAAA1old) that directly relates to the primary outcome. Yet, the NIAAA two-question screener was selected to address the secondary outcome of assessing for friends that drink or peer influence. The results pertaining to the primary outcome will be discussed here divided by specific tool.

CRAFFT. The CRAFFT screening tool is a 10-question tool that assesses alcohol and drug use. Questions 1 and 5 through 10 will be addressed in this section, while questions 2 through 4 will be addressed with the secondary outcomes. The first question asks how many days during the past 12 months there was use of alcohol (Question 1). The last six questions (Questions 5 through 10) are what gives the numerical score for the tool and ask yes or no questions about Car, Relax, Alone, Forget, Family/Friends, and Trouble which creates the acronym of CRAFFT. Each yes answer on the CRAFFT is equal to one point; thus, the total score ranges from 0 to 6 with a higher score consistent with a higher risk level for substance use disorder and alcohol use disorder. Scores of 0-1 indicate low/no risk, scores of 2-3 indicate moderate risk, and scores of 4-6 indicate high risk. A paired *t*-test was calculated to compare the means of Question 1-4 at initial screening compared to the 4-week follow-up. Question 1 had a mean on the initial screening of 3.20 (*SD* = 2.04), and the mean at the 4-week follow-up was 1.70 (*SD* = 1.06). There was a statistically significant reduction in alcohol use (Question 1) from initial screening to four-week follow-up ($t(9) = 2.24, p = 0.05$). Question 2 had a mean on the initial screening of 0.60 (*SD* = 0.84), and the mean at the 4-week follow-up was 0.50 (*SD* = 1.27) (Table 4.2).

A paired *t*-test was also calculated comparing the total CRAFFT score, determined by responses on questions 5-10, at initial screening and at 4-weeks post intervention. Question 5 asks if the participant has ever ridden in a CAR driven by themselves or others under the influence of drugs or alcohol. Question 6 asks if the participant has used alcohol or drugs to

RELAX. Question 7 asks if they use alcohol or drugs ALONE. Question 8 asks if they FORGET things while using alcohol or drugs. Question 9 asks if their FAMILY or FRIENDS tell them they should cut down on use. Lastly, question 10 asks if they have ever gotten in TROUBLE while using drugs or alcohol. The mean CRAFFT score on initial screening was 3.00 ($SD= 1.15$), and the mean at 4-weeks was 1.30 ($SD= 1.33$). A significant decrease from initial to 4-weeks was found ($t(9) = 11.13, p=0.00$). Paired t -test data including mean, standard deviations, t statistic, p -value, and confidence intervals for the CRAFFT score are presented in Table 4.2.

Additional questions. There are two additional questions that focused on alcohol use in the past 30 days. The first question (Drinks) asks number of drinks in past month, and the second question (Days) asks number of days the adolescent drank in the past 30 days. A paired t -test was calculated for both questions comparing the responses at initial screening and at the 4-week follow-up. The results of question one (Drinks) calculated an initial mean of 1.80 ($SD = 0.79$), and a mean of 0.30 ($SD = 0.48$) at the 4-week follow-up. This demonstrated a significant decrease in number of alcoholic drinks from initial to 4-week follow-up ($t(9) = 4.88, p=0.00$) (Figure 4.2). Question two's (Days) mean for initial was 1.20 ($SD = 0.63$), and the mean for the 4-week follow-up was 0.30 ($SD = 0.48$). This demonstrated a significant decrease in the number of days consuming alcohol from initial survey to the 4-week follow-up ($t(9) = 3.25, p=0.01$) (Table 4.2).

NIAAA screener. The NIAAA screener consists of two questions that differ slightly for those 13-14 years and adolescents that are 15 years or older, which created two versions of the screening tool based on age. Only the NIAAA questions that pertain to the primary outcome will be addressed in this section, and the questions that address the secondary outcome of peer influence will be discussed in the secondary outcome section. The younger adolescents (13-14) second question (NIAAA2young) asks a quantitative question on how many days they had a drink in the past year. The older adolescents (15-18) first question is how many days they had a drink in the past year (NIAAA1old). The NIAAA two-question screener does not have a total

score; thus, each variable was analyzed separately and compared at initial screening and 4-weeks post-intervention.

A paired *t*-test was calculated for the second question (NIAAA2young) for younger adolescents ($n=3$), and for the first question (NIAAA1old) for older adolescents ($n=7$) comparing results at initial screening and at 4-weeks post intervention. The mean NIAAA2young on initial screening 1.33 ($SD= 1.15$) and the mean at 4-weeks was 0.67 ($SD= 0.58$). No significance noted from initial screening to 4-weeks was found ($t(2) = 2.00, p=0.18$). However, there was a decrease in the mean days of alcohol consumption over the last 12 months for the younger adolescents, which any decrease in use increases the adolescent's safety. For the first question older adolescents' version of the tool, the mean NIAAA1old on initial screening was 3.86 ($SD= 1.68$) and the mean at 4-weeks was 1.57 ($SD= 1.72$). A statistical significance for NIAAA1old was noted from initial screening to 4-weeks was found ($t(6) = 2.49, p = 0.05$). NIAAA two-question screener results for NIAAA2young and NIAAA1old can be found in table 4.2.

Table 4.2
Primary Outcome: Alcohol Reduction Measurements

Variable	Initial		4-weeks		<i>t</i>	<i>df</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				<i>LL</i>	<i>UL</i>
Alcohol (Question 1)	3.20	2.04	1.70	1.06	2.24	9	0.05*	-0.02	3.02
CRAFFT score	3.00	1.15	1.30	1.34	11.13	9	0.00*	1.35	2.05
Drinks	1.80	0.79	0.30	0.48	4.88	9	0.00*	0.80	2.20
Days	1.20	0.63	0.30	0.48	3.25	9	0.01*	0.27	1.53
NIAAA2young	1.33	1.15	0.67	0.58	2.00	2	0.18	0.77	2.10
NIAAA1old	3.86	1.68	1.57	1.72	2.49	6	0.05*	0.04	4.53

Note. CI= confidence interval; LL = lower limit; UL = upper limit; *= statistically significant.

Secondary outcomes

The secondary outcomes assessed were other illegal substances, peer alcohol use, and risk level. Other illegal substances were addressed utilizing questions 2-4 on the CRAFFT tool. Peer alcohol use was measured with one question on both versions of the NIAAA two-question screener (NIAAA1young and NIAAA2old), see appendices D and C starting on page 76 for reference. Lastly, risk level was derived from the total CRAFFT score which can also be referenced in appendices D and C. The results pertaining to the secondary outcome will be discussed here divided by specific tool

CRAFFT. The first four questions of the CRAFFT ask how many days during the past 12 months there was use of alcohol (Question 1), marijuana (Question 2), other illegal drugs or prescriptions (Question 3), and tobacco or nicotine (Question 4). Question 1 pertains to the primary outcome and was previously addressed, so only questions 2-4 will be addressed in this section. A paired *t*-test was calculated comparing initial scores to 4-week scores for questions 2-4. A significant decrease in marijuana use (Question 2) from initial screening to four-week follow-up was not found ($t(9) = 0.36, p = 0.72$). Question 3 had a mean on the initial screening of 0.00 ($SD = 0.00$), and the mean at the 4-week follow-up was 0.10 ($SD = 0.32$). A significant decrease in use of other substances or illegal drugs (Question 3) from initial screening to four-week follow-up was not found ($t(9) = -1.00, p = 0.34$). Question 4 had a mean on the initial screening of 36.90 ($SD = 115.29$), and the mean at the 4-week follow-up was 30.30 ($SD = 94.77$). One participant smoked tobacco daily and was an outlier compared to other participants. A significant decrease in tobacco or nicotine use (Question 4) from initial screening to four-week follow-up was not found ($t(9) = 1.02, p = 0.34$). Paired *t*-test data including mean, standard deviations, *t* statistic, *p*-value, and confidence intervals for questions 2-4 on the CRAFFT tool are presented in Table 4.3.

Table 4.3
Remaining CRAFFT Tool Questions (2-4)

Variable	Initial		4-weeks		<i>t</i> (9)	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Marijuana	0.60	0.84	0.50	1.27	0.36	0.73	-	0.73
							0.53	
Other drugs	0.00	0.00	0.10	0.32	-1.00	0.34	-	0.13
							0.33	
Tobacco	36.90	115.29	30.30	94.77	21.28	0.34	-	21.28
							8.08	

Note. CI= confidence interval; LL = lower limit; UL = upper limit; *= statistically significant.

Risk level. As aforementioned, each yes answer on the CRAFFT tool is equal to one point. The total score ranges from 0 to 6 and is used to determine risk level. Scores of 0-1 indicate low/no risk, scores of 2-3 indicate moderate risk, and scores of 4-6 indicate high risk. The risk levels determine if the participant received MI, and a score of 2 or greater qualified for the intervention. A risk level was determined at initial screening and at 4-weeks post intervention. A chi-square test of independence was performed. Data demonstrated no significance between initial and 4-week screening responses ($\chi^2 (1) = 5.83, p = 0.07$) (Figure 4.4). While there were no significant differences in risk level from initial screening to 4-week follow-up, there was a shift in the percentages of participants that fell into the high-risk and moderate-risk categories to a low risk category from initial to 4-week follow-up. At initial screening 20% were high-risk, 80% were moderate-risk, and there were 0% of low-risk participants because they did not receive MI (Table 4.4). Thus, those that scored low risk were not included in this data set, which will be discussed further in chapter 5. Furthermore, the risk levels at the 4-week appointments were 0% high-risk, 30% moderate-risk, and 70% low-risk (Table 4.4) While not statistically significant, this shift towards 70% low-risk at the 4-week follow-up depicts an overall reduction in alcohol use.

Table 4.4
Risk Level

	Initial	4-weeks	χ^2	<i>df</i>	<i>p</i>
	n (%)	n (%)			
Risk Level			5.83	1	0.07
Low	0 (0%)	7 (70%)			
Moderate	8 (80%)	3 (30%)			
High	2 (20%)	0 (0%)			

NIAAA screener. As aforementioned, question 1 (NIAAA1young) on the young adolescent (13-14 years) version of the NIAAA tool, and question 2 (NIAAA2old) on the older adolescent (15-18 years) version of the tool both address friend's consumption of alcohol. NIAAA1 young is a yes or no question that asks, "Do you have any friends who drank beer, wine or any drink containing alcohol in the past year?" A chi-square test of independence was calculated for this dichotomous question (NIAAA1young) for the younger adolescents ($n=3$) to compare initial responses to responses at 4-weeks post-intervention. No significant relationship between initial screening and 4-week follow-up ($\chi^2 (1) = 3.00$, $p = 0.33$) was found (Table 4.5). A chi-square was selected for this question (NIAAA1young) because it produces nominal data; thus, a paired *t*-test was not appropriate. Question 2 for the older adolescents (NIAAA2old) asks how many drinks their friends drink on occasion if they do drink. A paired *t*-test was calculated comparing the second question (NIAAA2old) for older adolescents ($n=7$) at initial screening and at 4-weeks post intervention. The mean NIAAA2old on initial screening 3.71 ($SD= 2.93$) and the mean at 4-weeks was 1.16 ($SD= 0.88$). No significance for NIAAA2old was noted from initial screening to 4-weeks was found ($t (6) = 2.04$, $p = 0.09$) (Table 4.5).

Table 4.5

Peer Alcohol Use (NIAAA1young chi-square and NIAAA2old paired t-test)

See Alcohol Use (NIAAA1)young on square and NIAAA2old paired t test/									
Variable	Initial		4-weeks		χ^2	df	p		
	n (%)		n (%)						
NIAAA1young					3.00	1	0.33		
Yes	3 (100%)		3 (100%)						
no	0 (0%)		0 (0%)						
	Initial		4-weeks		t	df	p	95% CI	
	M	SD	M	SD				LL	UL
NIAAA2old	3.71	2.93	1.16	0.88	2.04	6	0.09	-0.51	5.63

Significance

To summarize, statistical significance was achieved for the primary outcome of alcohol use via Question 1 on CRAFFT tool ($t(9) = 2.23$, $p=0.05$), CRAFFT score ($t(9) = 11.13$, $p=0.00$), NIAAA1old ($t(6) = 2.49$, $p = 0.05$), and additional questions of Days ($t(9) = 3.25$, $p=0.01$) and Drinks ($t(9) = 4.88$, $p=0.00$). A paired t -test was calculated for each of these variables. The paired t -test calculated for the CRAFFT score resulted in a mean CRAFFT score on initial screening of 3.00 ($SD= 1.15$), and the mean at 4-weeks was 1.30 ($SD= 1.33$). Both the standard deviations were low; thus, the CRAFFT scores were all close to the average. There was a statistically significant decrease in CRAFFT scores from initial to 4-weeks ($t(9) = 11.13$, $p=0.00$). The paired- t test calculated for NIAAA1old resulted in a mean on initial screening of 3.86 ($SD= 1.68$) and the mean at 4-weeks was 1.57 ($SD= 1.72$). There was a statistically significant decrease for NIAAA1old from initial screening to 4-weeks ($t(6) = 2.49$, $p = 0.05$). The p -value of 0.05 for NIAAA1old means that there was statistical significance achieved for the primary outcome of alcohol reduction, but that it was not vastly significant. The paired t -test for the additional question of Drinks resulted an initial mean of 1.80 ($SD = 0.79$), and a mean of 0.30 ($SD = 0.48$) at the 4-week follow-up. There was a statistically significant decrease in the

number of drinks in the past 30 days from initial to the 4-week follow-up ($t(9) = 4.88, p = 0.00$). The paired t -test for the additional question of Days resulted an initial mean of 1.20 ($SD = 0.63$), and a mean of 0.30 ($SD = 0.48$) at the 4-week follow-up. There was a statistically significant decrease in the number of drinks in the past 30 days from initial to the 4-week follow-up ($t(9) = 3.25, p = 0.01$). With these results, it can be stated that there is a correlation with the utilization of MI for adolescents that are at a moderate risk level or higher and the reduction of adolescent alcohol use.

Reliability

A Cronbach's alpha regarding each tool utilized in this project was calculated specifically for this project using SPSS software. The Cronbach's alpha for the CRAFFT tool was 0.72, which is considered an acceptable reliability. The NIAAAold questions resulted in a Cronbach alpha of 0.83, which is a good reliability. The NIAAAyoung questions resulted in a Cronbach alpha of 0.63, which is considered a questionable reliability. The additional questions (Drinks and Days) resulted in a Cronbach's alpha of 0.86, which is a good reliability.

CHAPTER 5

DISCUSSION

The purpose of this EBP project was to answer the following PICOT question, “In adolescents 13-18 years old that seek health care at a school-based clinic, how does the implementation of a screening, brief intervention, and referral to treatment (SBIRT) policy that focuses on motivational interviewing decrease underage alcohol use at 4 and 8-weeks post-intervention?”. The project examined the impact of a policy that included screening with a paper packet containing demographics, NIAAA two-question screener, CRAFFT tool, and additional questions, combined with the brief intervention of motivational interviewing (MI), and referral to treatment when applicable. This chapter will discuss the explanation of findings for primary and secondary outcomes, evaluation of the project utilizing Stevens Star Model, strengths and limitations, and implications for future practice, theory, research, and education.

Explanation of Findings

Participant Findings

Current high-quality literature recommends that universal screening, brief intervention, and/or referral to treatment (SBIRT) is recommended as part of routine health care regarding adolescent alcohol use. There were several factors that limited the sample size, which will be discussed later within this chapter. It is found that the percentage of boys and girls that drink is similar until 10th grade, and then boys surpass girls in terms of use of alcohol use (NIAAA, 2015). An unexpected finding with this EBP project was that the females made up the predominant population (60%) that scored as moderate risk or higher and received MI compared to males (40%). However, this unexpected finding could be a result of more females receiving the initial screening (59%) than males (41%). The screening of majority females could be attributed to multiple reasons such as a higher female population within the school, more females utilizing the school-based clinic, or even chance. Nonetheless, these possible reasons were not explored due to limitations of access to data. Another finding is that the number of

participants that use alcohol increased as the age and grade increased. The participants that were 17 years of age and those in 11th grade both were 40% of the population. Tripodi and associates (2010) reported that about 44% of 12th graders admit to drinking in the past 30 days. This sample size had a peak in alcohol use at 11th grade, but these differences in findings compared to literature could be due to various reasons. For example, many participants were screened for alcohol use during their sports physicals, and for seniors the fear of repercussions due to alcohol use and the ability to participate in their sport for their final year could have been enough to cause false reporting on the screening tool. Tripodi and associates (2010) also reported that 14 years of age is the average age at which alcohol use is initiated. This is similar to what was found within this population as there was a spike of adolescents 13 years of age that were using alcohol at 20% compared to those participants aged 14 and 16 which both made up 10% of the participants.

Primary Outcome

There was a statistically significant decrease in alcohol use achieved upon project completion at the 4-week follow-up appointment. Mean CRAFFT scores did decrease from the initial screening to the 4-week follow-up appointment with a mean score of 3.00 at initial and 1.3 at 4-weeks. Thus, resulting in a *p* value of 0.00. Also question 1 on the CRAFFT tool regarding number of days alcohol consumed over a 12-month period did have a statistically significant decrease in mean from an initial mean of 3.20 to a 4-week mean of 1.70 with a *p* value of 0.05. The 8-week follow-up appointments were only completed on two participants due to extending the initial screening phase which did not allow the other 8 participants enough time to receive the 8-week follow-up appointment. However, the CRAFFT scores and number of days alcohol was consumed for the participants that received the 8-week follow-up both decreased. Furthermore, the additional questions (Days and Drinks) also supported a statistically significant decrease in alcohol use with a mean of Drinks initial score of 1.80 and 0.30 at 4-weeks, and a mean Days initial score of 1.20 and 0.30 at 4-weeks. Thus, resulting in a *p*-value of 0.00 for

Drinks, and 0.01 for Days. The NIAAA1old question supported a statistically significant reduction in number of days alcohol was consumed with a mean initial score of 3.86 to a mean score of 1.57 at 4-weeks. The p -value demonstrated significance at $p= 0.05$. While the NIAAA two-question screener was primarily utilized to assess if friends drink, the NIAAA1old question does assess number of alcoholic drinks over the past 12 months. Thus, it supports the primary outcome of reduced alcohol use. There appears to be a correlation of alcohol reduction when an at-risk adolescent receives MI.

Additional questions of (Drinks and Days) are like the questions found on the CRAFFT and NIAAA; yet, it was important to include these as they measure these questions over the past 30 days versus the past 12 months. There was a decrease in the CRAFFT scores, but it could be argued that additional questions are a more reliable since follow-up at 12 months was not feasible for this project. Furthermore, it would be more accurate to state that there is a correlation of reduction in alcohol use over a short period of time (4-weeks) when an at-risk adolescent receives MI. The correlations found between all the measurements of the primary outcome and MI endorse the utilization of MI and suggests that an SBIRT policy with MI as the brief intervention should be included in routine care for adolescents. This statement is similar to what is found in the literature. In fact, an evidence summary that addressed the effectiveness of MI to improve health behaviors stated that MI should be considered as routine care to help people change behaviors that can cause health risks (Gyi, 2018). The literature did not address the use of an SBIRT policy and MI in a school-based clinic; however, the results of this project show promise. Furthermore, implementing this policy in a school-based clinic can increase the quality of care for adolescents. While the sample size was small, the use of MI has shown great success within this population. This is critical as the main goal of providers that care for adolescents should be focused on the adolescent's health and safety, and alcohol use can greatly affect that health and safety.

Secondary Outcomes

As aforementioned, the NIAAA two-question screener was primarily utilized to assess if the adolescent's friends used alcohol. Questioning about friends using alcohol is important because it is an early warning that predicts the adolescents personal drinking levels, and peer pressure is a major contributing factor as to why adolescents drink alcohol (NIAAA, 2015; NIAAA, 2017). There was no statistical significance found for friends drinking in the young (NIAAA1 young) and older (NIAAA2 old) adolescents. There was no change in the friend's question (NIAAA1young) for the young (13-14) adolescents. In fact, the sample for this group was 3 participants and all selected yes to friends drinking at initial screening and at 4-week follow-up. However, for the older group (n=7) of adolescents (15-18) there was a decrease in the question about friends drinking with an initial mean of 3.71 to a mean of 1.16 at the 4-week follow-up. As previously stated, while this is not significant, any decrease of alcohol use in adolescents and their friends is beneficial to their safety and health. Knowing if the participants friends consume alcohol will allow the provider to tailor the advice to include the risk factors of friends drinking, and to hopefully give enough advice that the participants spread it to their friends (NIAAA, 2015). If the participants discuss the risks of alcohol use with their friends, the potential for that friend to reduce alcohol consumption increases.

Although there was no statistically significant decrease in risk level from initial screening to 4-week follow-up, there was a shift from a higher level of risk to a lower level. Moderate risk was predominant in this sample at 80%, while there were only 20% high risk, and no low risk at initial screening as they did not receive MI. There was a shift of risk level at 4-weeks with 70% of participants a low risk and 30% moderate risk, but there were no adolescents that scored high risk (0%). While not statistically significant, the reduction of those that scored moderate or high risk from initial to 4-weeks is a positive outcome and supports the increase in participants health and safety.

Furthermore, questions 2-4 on the CRAFFT were also not statistically significant, and these questions do not pertain to the primary or secondary outcomes measure in this project. Yet, it is important to discuss because they question the amount of days where marijuana (question 2), other drugs (question 3), and tobacco (question 4) were used, and any form of substance use in adolescents can cause harm. The NIAAA (2017) reported that adolescents that drink alcohol at a younger age are more likely to participate in behaviors that can cause further harm, such as using other drugs. The CDC (2018) also report that adolescents that drink are more likely to misuse or abuse other drugs. Therefore, alcohol use is correlated to abuse of other substances, and screening for other drugs is important (NIAAA, 2017). The mean scores of questions 2 and 4 did decrease from initial screening to 4-week screening, but the mean of question 3 increased from 0.00 to 0.10. While this project focused on adolescent alcohol use, it would be morally and ethically harmful to not address other types of substance abuse. Also, alcohol remains one of the most popular substances used by adolescents, but other substances, such as marijuana, have become increasingly popular (Levy, et al., 2016). Therefore, the CRAFFT tool was selected because it measures alcohol and other substances. It would be immoral to only screen for alcohol after the literature supported a correlation between alcohol use and other substances. Further studies should further address the use of MI for adolescents that abuse other substances.

Evaluation of the EBP Model

The Stevens Star Model of Knowledge Transformation was created to assist with the movement of newly discovered information into practice and to simplify research for application to clinical decision making (Melnik and Fineout-Overholt, 2019). This model aims to bridge the gap between best evidence, patient preferences, and clinical expertise, and its application was apparent throughout this EBP project. Implementation of this model was fostered using the five stages of knowledge transformation including: (1) discovery research, (2) evidence summary, (3) translation to guidelines, (4) practice integration, and (5) process and outcome evaluation

(Stevens, 2012). Each stage of knowledge transformation aided in the process of this EBP project.

The first stage, discovery research, of the model assisted with generating new knowledge (Stevens, 2012). This was the stage where research was conducted. This research included discussions with the facilitator on certain areas of concern. Those areas of concern were then expanded upon and further researched within the literature. Information gained during this stage was presented to the facilitator and the concern area that produced the most viable information was selected. Thus, this stage of the model identified adolescent alcohol use as the topic for the EBP project. Once the topic was selected, then the rigorous research was conducted, and a preliminary PICOT question was formed.

The second stage, evidence summary, was where the evidence was gathered and synthesized with a goal of making an evidence summary that can be utilized by people (Stevens, 2012). The evidence that was gained during the first stage was taken and critiqued so that high-quality and high-level evidence was utilized to support the project. This high-level high-quality evidence was then analyzed to highlight the similarities of the evidence so that they could guide the EBP project. The evidence conferred three main themes related to adolescent alcohol use. The first theme was the emphasis on confidentiality. The last two themes include screening and brief intervention, which are the integral parts to SBIRT. Numerous screening tools were discussed in the literature, but utilization of the CRAFFT tool was predominant. The most widely used brief interventions were MI and cognitive behavioral therapy. Using the information found within this stage allowed for an easy transition to the third stage.

The third stage, translation to guidelines, takes the evidence summary and combines it in a useful and relevant way by presenting it as a guideline that is easy to understand (Stevens, 2012). This was the stage where the policy was formed utilizing the screening, brief intervention and referral to treatment (SBIRT) method. The evidence summary developed in stage two supported the formation of an SBIRT policy with a focus on MI as the brief intervention. Each

theme of the evidence summary was utilized as a main step in the policy. For example, the policy included specific guidance on confidentiality and how to maintain or break it when necessary. The policy was created with assistance from the facilitator to ensure that it is relevant, easy to understand, and time/cost effective.

The fourth stage, practice integration, was when the evidence summaries are implemented into practice. The policy was implemented; however, there were some modifications that occurred during this phase. The Star Model was a great guide for this project as it is nonlinear, which makes the process of modifying the EBP project much easier as you can move back and forth from one point to another with ease. One modification included the informational note. Initially, a note was sent out via email and with each student that described the project and required a signature of parent or guardian to be eligible to participate. However, it was determined that this was too closely related to a consent form, so the signature section was removed, and the informational note was sent home with students if they participated. Another modification was to have the practitioner hand out screening tools instead of the front desk as the front desk worker was pulled to work at another facility. The modification that had the largest impact was the modification to the time. Initially there was only going to be a 4-week follow-up appointment; however, most of the evidence supported following up at the year marker. Since a year follow-up was not feasible, it was determined that an 8-week follow-up should be included, but these were not completed due to an extension of initial screening time. The first screening phase was to end in November to allow for adequate time for the 4 and 8-week follow-ups. Yet, the screening phase was pushed to December due to delay in start date caused by the informational letter, and then extended again to mid-February due to small sample size. This did increase the sample size, but it only allowed time for a 4-week follow-up.

The fifth stage, process and outcome evaluation, was the stage where the EBP project was evaluated based on its impact on patient outcomes: satisfaction, efficiency, and efficacy. The project was completed in full and many goals were met, but most participants did not

receive an 8-week follow-up. This project had a positive impact on the primary patient outcome as there was a statistically significant reduction in alcohol use. There was no formal questioning about satisfaction, and efficiency or efficacy. The provider expressed would like to adopt this policy for use in the future. However, without changes to staffing, the provider reports that the additional task was overwhelming. Thus, the provider could not with certainty state if they policy will be continued. Yet, it was strongly encouraged that she continues with utilizing the policy. There was a discussion on ways to assist the provider with continuation of policy. One possible change, other than increased staff, would be to change the screening tool to utilizing only the CRAFFT tool. The short straightforward questions on the CRAFFT would allow less time waiting for patients to complete the tool, and thus, less time spent with one patient.

Strengths and Limitations of the EBP Project

Strengths

A strength of this project was the selection of the CRAFFT tool. As aforementioned, this tool was chosen not only for assessing alcohol use, but also for other substances which is beneficial in the long run. Also, the selection of the CRAFFT and NIAAA tools both supply questions that can assist with direction in motivational interviewing as the questions offer topics that the provider can explore. For example, on the NIAAA two-question screener, the question about having friends that drink can present an option to discuss if the patient feels pressured to drink when their friends drink. Another strength included having a semi-structured outline for motivational interviewing and requiring MI training for all participating providers. This appeared to give the practitioner more confidence and structure to their patient centered MI. Furthermore, the setup of the policy, more specifically screening, allowed for the possibility of having a large sample size, which would increase the generalizability of the outcomes. Another strength was the clear guidelines for when referral is necessary, which assisted with ensuring that the participants received proper treatment when necessary. The emphasis and addition of confidentiality to the policy was another strength of this EBP project. No measurement was

available to measure participants honesty in this specific setting; yet, the same could be said about adult patients with similar screening tools. The discussion of confidentiality with each participant appeared to promote honest answers on the screening tools

Limitations

A major limitation to this project was the structure of the project site. Office changes during the implementation phase caused lower staffing levels, which increased the providers duties. This in turn lead to the provider having less time to dedicate to adhering to the project, and thus an initial low number of participants. Another limitation was that much of the evidence was systematic reviews where the authors discussed brief interventions and how MI has evidence that supports its use but did not include details on MI or what it entails. Thus, it was apparent that the framework of the MI had to be derived and inferred from the training video and the guidelines, which are lower levels of evidence. The CRAFFT tool was consciously selected to be useful in the future and cover all substances, however it was hard to determine if participants were positive (score of 2 or above) on the CRAFFT tool due to alcohol until the MI when further questions were asked which presented a weakness. However, it was found that those that were using alcohol were also using other substances at the same time. MI could be ineffective or not performed at all if proper training is not provided, which is a limitation. However, this provider was extremely comfortable talking to adolescents and structuring the MI appropriately while still giving encouragement. Another limitation was the lack of assessing responses or satisfaction of the project from both the providers and participants, which could have given more useful data. An example of this would be data about the confidentiality aspect of this project, that could in turn help assess if the patients felt comfortable with providing honest answers.

Implications for the Future

Practice

The use of screening, brief intervention, and/or referral to treatment (SBIRT) has been established as best practice in current literature. However, there still appears to be a debate on what screening tools to use and what type of brief intervention is best. Yet, the literature supported the use of multiple screening tools, and supported the use of cognitive behavioral therapy, which includes motivational interviewing. In fact, more recent high-quality literature supports the use of MI in adolescents. This project supported the feasibility, lost cost, effectiveness associated with an SBIRT policy that includes MI for adolescent alcohol use. However, while it was feasible with the current staff ratio in this clinic, it might not be practical for long term use in clinics with low staff ratios.

There are many future EBP considerations to address. Future EBP projects with larger sample sizes would be beneficial to further explore significance and generalizability. Additionally, it would be beneficial to also assess the participants over a longer period of time to determine the effectiveness of MI over time. One recommendation is to address substance abuse instead of only assessing alcohol abuse as the use of other substances in adolescents is on the rise. The CRAFFT tool could be used on its own to assess substance abuse and to explore the effects of MI in adolescents with substance abuse issues and to explore generalizability.

Theory

The Stevens Star Model provided a straightforward guide and aided in successful implementation of this EBP project. The transformation of knowledge came full circle as the generation of information during discovery research, to evidence summary, to translation into guidelines, to practice integration, then to outcome evaluation, and back again to discovery research as the evaluation presented further questions. Future EBP projects about substance or alcohol abuse in adolescents could be assisted with the use of this EBP model as a guide.

However, further exploration of this model and its details could provide a more in-depth utilization of this EBP model, and thus improved assessment of patient and provider satisfaction.

Research

Further research is needed in order to explore the effects of MI on substance abuse. As previously mentioned, it is now more apparent that adolescents are using different types of substance. Research was limited to alcohol use; however, there were a few articles that discussed other substances, most notably marijuana. Research on other substances with the use of MI would be valuable as the safety of adolescents is a major concern.

Education

Not only does this EBP project facilitate education of adolescents and the use of alcohol, but the knowledge gained from project outcomes will have implications for providers that care for adolescents. While there was a small sample size it was apparent that this population of adolescents demonstrated a need for this project due to the rate of adolescents who screened at a moderate or high-risk level of alcohol use. In fact, of the 39 participants screened, 10 of them (25.6%) scored a 2 or higher on the CRAFFT tool, which puts them at a moderate of high level of risk. It may seem that 25.6% of the population screened is a small number, but that is a large number of adolescents that are drinking at a level that is deemed concerning by high quality literature. Any use of alcohol is not safe for adolescents as it can cause serious health risks. The health risks of alcohol consumption for adolescents can include, but are not limited to social problems, school problems, legal problems, physical problems, risky sexual activity, and even death (CDC, 2018). Thus, it is important that providers be knowledgeable of SBIRT policies.

Conclusion

In conclusion, results of this project support the effectiveness of an SBIRT policy utilizing MI as the brief intervention when caring for adolescents that use alcohol. An SBIRT policy that

determined which patients were at risk and required motivational interviewing and/or referral with the NIAAA two-question screener and CRAFFT tool was implemented in an organization that has school-based clinics. This policy was chosen as the evidence supported its use, and because there was no policy for adolescent alcohol use within the organization. The intervention did demonstrate a statistically significant difference for the reduction of alcohol use, but the secondary outcomes did not reveal statistically significant differences. However, this still supports this policies utility and generalizability for the reduction of alcohol use in adolescents in a school-based clinic when using motivational interviewing.

Methods for sustainability were discussed at this project with the site facilitator, and there is support for future use of this policy. However, there was hesitancy on commitment due to staffing issues and the uncertainty of the future of the school-based clinics due to the pandemic. The site facilitator was receptive for future discussions regarding sustainability after more information is known about the future of the clinic. It is imperative that the use of MI be further studied regarding the reduction of other illegal substance use. This project made it apparent that other illegal substances are being used, and there is a high probability that adolescent use of illegal substances will continue to increase. Overall, the SBIRT policy utilizing MI for adolescent alcohol use is a patient-centered policy that focuses on upholding the patient's best interests. Future use could potentially save adolescent lives.

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BIOGRAPHICAL MATERIAL**Kelsie L. Berger**

Mrs. Berger graduated from Manchester University with a Bachelor of Science in Biology in 2013. She worked in an OBGYN office as a Medical Assistant before attending Valparaiso University for her Bachelor of Science in Nursing in 2015. Upon graduation, she started working as a Registered Nurse in a Level 2 trauma center at a hospital in South Bend, Indiana. She continues to work at this hospital and had her four-year anniversary in Fall of 2019. During her time at this hospital Mrs. Berger participated in the unit practice counsel and was a preceptor for students and new employees. Mrs. Berger is currently attending Valparaiso University to pursue her Doctor of Nursing Practice with a scheduled completion date in May 2020. She is a member of Zeta Epsilon Chapter of Sigma Theta Tau International Honor Society of Nursing, CAPNI, and AANP. She was coauthor and researcher for a behavioral studies project titled, "How do the number of females that are available influences the aggressiveness of male deer mice (*Peromyscus maniculatus*) and their investigation of the females?". She had the opportunity to present this topic at Indiana Academy of Science in 2013. Mrs. Berger has a passion for medical missions and working with underserved communities. In the future, her plans include volunteering for a medical mission with NuVasive Spine Foundation. Her clinical area of interests includes family practice, urgent care, and emergency care.

ACRONYM LIST

ACE: Academic Center for Evidence-Based Practice

AUD: Alcohol Use Disorder

AUDIT: Alcohol Use Disorders Identification Test

BHC: Behavioral Health Clinic

BI: Brief Intervention

BMI: Brief Motivational Intervention

CDC: Center for Disease Control

CRAFFT: Car, Relax, Alone, Forget, Friends or Family, Trouble

EBP: Evidence-Based Project

FNP: Family Nurse Practitioner

IRB: Institutional Review Board

MI: Motivational Interviewing

NIAAA: National Institute on Alcohol Abuse and Alcoholism

NSDUH: National Surveys on Drug Use and Health

PICOT: Population, Intervention, Comparison, Outcome, Time

RCT: Randomized Control Trial

RSE: Resistance Self-Efficacy

SAMSHA: Substance Abuse and Mental Health Services Administration

SBIRT: Screening, Brief Intervention, Referral to Treatment

SPSS: Statistical Package for the Social Sciences

U.S.: United States

VRS: Virtual Reality Simulation

Appendix A

Informational letter for Parent or Guardian

Dear Parent or Guardian,

My name is Kelsie Berger, I am a Doctor of Nursing Practice student at Valparaiso University. Currently, I am working on an evidence-based practice project that has a focus on identification and management of alcohol use in adolescents. A policy was created to aid the onsite nurse practitioner in identifying and managing adolescents 13 to 18 years old that drink alcohol.

The project will hold the following components. First, adolescents will be screened at any visit to the onsite Northshore clinic by using the National Institute on Alcohol Abuse and Alcoholism screener and CRAFFT tool. The NIAAA screener asks two questions related to alcohol consumption that aids a provider in recognizing signs of current or future problems. The CRAFFT tool asks questions about the use of alcohol or other substances. CRAFFT is an acronym for car, relax, alone, forget, friends/family, and trouble, and each of these words represent the main topic of each question on the tool. The results of their screening score (low, moderate, or high risk) will be analyzed and utilized in the indication of the needed intervention. Low risk will receive positive reinforcement; whereas moderate and high-risk patients will receive a one-time 15-minute motivational interview by the nurse practitioner that focuses on motivating the adolescent to make healthy decisions and changes. Positive reinforcement will focus on commending the patient on their good choices; whereas, motivational interviewing is a method of communication and counseling that focuses on the patient's self-motivation and resistance to change with a goal of them making positive changes. High-risk patients will also be referred to behavioral health to ensure proper care is achieved. Next, there will be follow-up appointments at 4 and 8 weeks to reassess the adolescents that received motivational interviewing using the same screening tools from the initial appointment. The screening and motivational interviewing will be done in a private environment without parents or guardians to

ensure truthful answers. However, safety measures have been put in place and parents or guardians will be notified when necessary. The overall goal of this evidence-based project is to reduce underage drinking within this community and to promote healthy and safe lifestyles. Participation in this project is confidential and information that could directly identify you or the patient will not be included. Thank you!

Appendix B

Adolescent Alcohol Identification and Management Policy and Plan

Northshore school-based clinics have an Adolescent Alcohol Identification and Management policy and plan in place. The plan is described below. Adolescents 13 to 18 years old seen at the Northshore clinic will be assessed annually at an appointment for underage alcohol use. Patients that participate in underage drinking will receive appropriate care. The purpose of this plan is to reduce underage alcohol consumption and promote healthy choices.

I. Confidentiality

- A. All patients 13 to 18 years of age will receive screening and motivational interviewing without the presence of their parent or guardian.
- B. An informational letter will be sent out that outlines the policy prior to implementation. The nurse practitioner will explain that the results and treatment will remain confidential from parents or guardians unless they are at imminent risk for harm. The nurse practitioner will explain that confidentiality will be broken if they require specialized care at Northshore's behavioral health (BHC). Good!

II. Screening

- A. The receptionist or nurse practitioner will give each patient aged 13 to 18 years old the paper screening packet and allow them to fill it out in privacy. The screening packet will contain the NIAAA two-question screener, the CRAFFT tool, and the additional questions on frequency per month. There will be two versions of the packet. One for patients 13 and 14 that ask the patient about friends alcohol use first, and one for patients 15 and older that ask about personal drinking first. The receptionist or nurse practitioner will give the patient the correct age correlated packet
- B. After the patient is finished with the screening packet, the nurse practitioner will discuss the results with the patient. The meaning of the score on the CRAFFT tool and the identified risk level will be explained to the patient. The nurse practitioner will use this time to explore responses and ask other questions that can give more insight for motivational interviewing.
 - 1. Patients that are low risk (score 0 to 1) on the CRAFFT tool will receive encouragement for good choices from the nurse practitioner.
 - 2. Patients that are moderate risk (score 2 or 3) on the CRAFFT tool will receive motivational interviewing.
 - 3. Patients that are high risk (score 4 or above) will receive motivational interviewing and be referred to Northshore's BHC for specialized care.

4. Emergency services will be contacted for patients that are at imminent risk of harm or those that appear to be intoxicated during the appointment.

III. Motivational Interviewing

- A. The nurse practitioner will provide motivational interviewing in a confidential setting without parents or guardians present for patients that are moderate or high risk based on the screening scores. Each patient that requires intervention will receive one session of patient-centered motivational interviewing that last 15 minutes.
- B. Principles of motivational interview that must be addressed for each patient by the nurse practitioner will be:
 1. The nurse practitioner will express empathy and take a warm nonjudgmental stance. the nurse practitioner will engage in active listening and reflect back on what is said to make the patient feel heard. The nurse practitioner will gather information that would illustrate why and how the patient participates in underage drinking.
 2. The nurse practitioner will express concern about patients safety and well being. Consequences of underage drinking will be discussed during this stage of motivational interviewing. The goal is for the nurse practitioner to raise awareness of consequences and to discuss goal or values that can be compromised by drinking.
 3. The nurse practitioner will assess if there is resistance to change. If the patient shows resistance, the nurse practitioner must affirm autonomy of the patient and encourage them to change. The nurse practitioner can offer advice to the patient during this stage that promotes the reduction in alcohol consumption and improves safety. It is also important to address peer influence at this time to further encourage change.
 4. Lastly, the nurse practitioner must support the patients' self-efficacy. This can be done by expressing confidence in the patient's ability to change and highlighting the patient's strengths by discussion of other success if possible.

IV. Follow-up

- A. Create a follow-up appointment with the same provider at four and eight weeks after receiving motivational interviewing.
- B. At the follow-up appointment, the patient will receive the same screening packet and be allowed to answer the screening packet in private. The nurse practitioner will confidentially go over results of packet again to determine if the patient has had a reduction in alcohol use. If other goals were set during motivational interviewing, the nurse practitioner can address them.
- C. The patient will be referred to BHC if there was no reduction in alcohol use.
- D. If the patient's alcohol use was reduced from initial visit, then the nurse practitioner will provide encouragement.
- E. The nurse practitioner will check on the patients that were high risk and referred to BHC. This will help ensure that the patient is receiving appropriate treatment.

V. Training of Staff

- A. All providers that care for adolescents in the organization will receive a 53-minute video training on motivational interviewing.
 - 1. <http://www.ndri-usa.org/e-learning.html>

Appendix C

13-14 Year Old Screening Packet with Demographics

Please do not write your name on this form.

A. Demographic Data

Please answer all questions honestly.

1. Age in years: _____
2. Grade: _____
3. Gender:
 - a. Male
 - b. Female
4. Race
 - a. African American
 - b. Asian-Pacific Islander
 - c. Caucasian
 - d. Hispanic
 - e. Native American
 - f. Other
 - g. Prefer not to answer

B. Screening questions

NIAAA two-question screener

1. Do you have any friends who drank beer, wine or any drink containing alcohol in the past year? YES or NO (circle one)
2. In the past year, on how many days have you had more than a few sips of beer, wine, or any drink containing alcohol? _____ (number of days)

CRAFFT Tool

The self-administered version 2.1+N of the CRAFFT Questionnaire was utilized within this section of the screening packet. Permission for reproduction was not obtained please visit the CRAFFT 2.1 Manual to view the exact version of the questionnaire utilized on page 32 (CeASAR, 2019). The CRAFFT 2.1 Manual can be found at: at <https://crafft.org/wp-content/uploads/2019/12/CRAFFT-2-1-manualN-2019-12-24.pdf>

Interpreting CRAFFT results

Score 1 point for each “yes” response.

CRAFFT Scores	Interpretation
0-1	Low/no risk
2-3	Moderate risk
3-6	High risk

C. Additional Questions

1. In the past month (30 days) how many drinks more than a few sips of any drink containing alcohol have you had? _____ (number of drinks)
2. In the past month (30 days) on how many days did you have more than a few sips of any drink containing alcohol? _____ (number of days)

Appendix D

15-18 Year Old Screening Packet with Demographics

Please do not write your name on this form.

A. Demographic Data

Please answer all questions honestly.

1. Age in years: _____
2. Grade: _____
3. Gender:
 - a. Male
 - b. Female
4. Race
 - a. African American
 - b. Asian-Pacific Islander
 - c. Caucasian
 - d. Hispanic
 - e. Native American
 - f. Other
 - g. Prefer not to answer

B. Screening questions

NIAAA two-question screener

1. In the past year, on how many days have you had more than a few sips of beer, wine, or any drink containing alcohol? _____ (number of days)
2. If your friends drink, how many drinks do they usually drink on occasion? _____ (number of drinks)

CRAFFT Tool

The self-administered version 2.1+N of the CRAFFT Questionnaire was utilized within this section of the screening packet. Permission for reproduction was not obtained please visit the CRAFFT 2.1 Manual to view the exact version of the questionnaire utilized on page 32 (CeASAR, 2019). The CRAFFT 2.1 Manual can be found at: at <https://crafft.org/wp-content/uploads/2019/12/CRAFFT-2-1-manualN-2019-12-24.pdf>

Interpreting CRAFFT results

Score 1 point for each “yes” response.

CRAFFT Scores	Interpretation
0-1	Low/no risk
2-3	Moderate risk
3-6	High risk

C. Additional Questions

3. In the past month (30 days) how many drinks more than a few sips of any drink containing alcohol have you had? _____ (number of drinks)
4. In the past month (30 days) on how many days did you have more than a few sips of any drink containing alcohol? _____ (number of days)